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ABSTRACT

This report is one of a set of five that constitutes baseline descriptions and initial analyses of a very rich dataset. The report covers four major areas of interest in the comparison of public and private schools: student composition within the public and private sectors, resources available in these schools, the functioning of these schools, and the outcomes for students in the schools. The data and the analyses presented in this report are from the first (1980) wave of a longitudinal study. The responses are from questionnaires completed by representative samples of approximately 58,000 students in 1,015 public and private secondary schools, as well as their respective school officials. Catholic schools, which constitute about two-thirds of the total private sector, and other private schools are separately compared to public schools in the report. For some analyses, two additional sets of schools are included in the comparison. These are 11 high-performance private schools and a set of 12 high-performance public schools. Findings indicate that important factors in bringing about higher scholastic achievement in private and Catholic schools than in public schools are the greater academic demands and more ordered environment. The overall conclusion is made that the factual premises underlying policies that would facilitate use of private schools are much better supported on the whole than those underlying policies that would constrain their use. (Author/MLF)

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DRAFT

PUBLIC AND PRIVATE SCHOOLS

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EA 013 552

TABLE OF CONTENTS

PREFACE xii

ACKNOWLEDGMENTS xvii

SUMMARY OF MAJOR FINDINGS xix

1. INTRODUCTION 1

2. THE SIZE AND GEOGRAPHIC DISTRIBUTION OF PUBLIC AND PRIVATE SECONDARY SCHOOLS 9

    2.1. Enrollment and Geographic Comparisons of Public and Private Secondary Education 11
    2.2. Selected Attributes of Private Secondary Schools 20

3. THE STUDENT COMPOSITION OF PUBLIC AND PRIVATE SCHOOLS 26

    3.1. The Racial and Ethnic Backgrounds of Public and Private School Students 28
    3.2. The Economic Backgrounds of Public and Private School Students 51
    3.3. The Religious Backgrounds of Public and Private School Students 59
    3.4. Handicapped Students in Public and Private Schools 64
    3.5. The Predicted Impact of a Policy Change Facilitating Enrollment in Private Schools 67

4. SCHOOL RESOURCES 76

    4.1. Course Offerings 78
    4.2. Staffing Patterns 85
    4.3. Special Programs 89
    4.4. Physical Facilities 92
    4.5. Federal Programs 94
    4.6. Conclusion 96

5. THE FUNCTIONING OF PUBLIC AND PRIVATE SCHOOLS 100

5.1. Student Coursework 101
5.2. Extracurricular Activities 111
5.3. Disciplinary Standards 114
5.4. Student Behavior 125
5.5. Students' Attitudes 139
5.6. Conclusion 145

6. OUTCOMES OF EDUCATION 148

6.1. Descriptive Differences in Outcomes Between Public and Private Schools 150
6.2. Effects of Private Schools on Outcomes of Schooling 165
6.3. Factors Affecting Cognitive Achievement in the Schools 197
6.4. Summary of Educational Outcomes 219

7. CONCLUSION 224

APPENDIXES

A. Statistical References

B. Items from the Student and School Questionnaires Used in the Analysis

REFERENCES

LIST OF ILLUSTRATIONS

Figure		Page
3.1.1	Percent of students from differing income levels in Catholic schools, by race and ethnicity	37
3.1.2	Percent of students from differing income levels in other private schools, by race and ethnicity	38
3.1.3	Percent of Catholic students from differing income levels in Catholic schools, by race and ethnicity	40
3.1.4	Percent of non-Catholic students from differing income levels in Catholic schools, by race and ethnicity	41
3.2.1	Percent of students in public, Catholic, and other private schools, by family income level	54
5.3.1	School aggregate ratings of discipline, teacher interest, and school spirit by students in the public and private sectors: average and range within each school sector	123
5.4.1	School aggregate assessment of discipline problems by sophomore students in public and private schools: average and range within each school sector	138

LIST OF TABLES

Table Page

2.1.1 National Figures for Number of Schools and Estimated Enrollments in Grades 9-12 in Public and Private Education: 1978-79 School Year 12

2.1.2 Estimated Percentage Distribution of Students in Grades 9-12 in Public and Private Schools for Each of the Nine Census Regions: 1978-79 School Year . 14

2.1.3 Estimated Percentage Distribution of Students in Grades 9-12 in Public and Private Schools by State: 1978-79 School Year 15

2.1.4 Percentage Distribution for Schools and Estimated Enrollments (Grades 9-12) in Urban, Suburban, and Rural Communities by School Sector: 1978-79 School Year 18

2.2.1 Selected Private School Statistics by Affiliation of School: 1978-79 School Year 21

2.2.2 Number and Percentage Distribution of Public and Private Schools by Type of School: 1978-79 School Year 22

2.2.3 Number and Percentage Distributions of Private Schools with Different Affiliations by Sex of Students Served: 1978-79 School Year 24

2.2.4 Number and Percentage Distribution of Schools with Different Affiliations by Day-Boarding Mix: 1978-79 School Year 25

3.1.1 Percentage Distributions of Whites, Blacks, and Hispanics in Public and Private Schools by Grade . 30

3.1.2 Proportional Racial and Ethnic Composition of the Surveyed High Schools' Local Geographic Areas, Weighted by School Enrollments, and Differences Between Local Areas and Schools, by Educational Sector 34

3.1.3 Number and Percent of Catholic and Non-Catholic Whites, Blacks, and Hispanics That are in Catholic Schools 39

3.1.4 Indices of Interracial and Interethnic Contact and Segregation in Public and Private Schools 44

3.1.5 Percentage Distributions for Black Students in Public and Private Schools by Level of Black Enrollment . 47

3.1.6 Percentage Distribution for Hispanic Students in Public and Private Schools by Level of Hispanic Enrollment 48

3.2.1 Percentage Distributions of Students from Various Economic Backgrounds and Median Family Incomes in Public and Private Schools 53

3.2.2 Indices of Contact and Segregation of Pupils from Higher and Lower Income Families in Public and Private Schools 56

3.3.1 Percentage Distributions of Students from Various Religious Backgrounds in Public and Private Schools 61

3.3.2 Indices of Catholic/Other Religious Background Contact and Segregation in Public and Private Schools 63

3.4.1 Percent of Students Reporting Handicaps in Public and Private Schools 65

3.4.2 Mean Percent of School's Student Body That is Handicapped, as Reported by Principals, and Criteria Used to Classify for Public and Private Schools 66

3.5.1 Percent of White, Black, Hispanic and Total Students from Each Family Income Level in Catholic and Other Private Schools, and Number in Public Schools 70

3.5.2 Predicted Numbers of Hispanics, Non-Hispanic Blacks, and Non-Hispanic Whites Shifting to Catholic and Other Private Schools with $1,000 Increase in Family Income 72

3.5.3 Predicted Numbers of Students at Different Income Levels Shifting to Catholic and Other Private Schools with $1,000 Increase in Family Income 74

4.1.1 Percent of Public and Private Schools Offering Specific Courses 79

4.1.2 Percent of Sophomore Students in Public and Private Schools Attending Schools Where Specific Courses are Offered 80

4.2.1 Staffing Ratios for Public and Private Schools 86

4.3.1 Percent of Sophomores in Public and Private Schools Having Access to Selected Special Programs 90

4.4.1 Percent of Sophomores in Public and Private Schools Having Access to Certain Physical Facilities 93

4.5.1 Percent of Public and Private Schools Reporting That the School or Its Students Participate in Selected Federal Programs 97

5.1.1 Average Number of Semesters in Various Subjects, Planned by Sophomores and Taken by Seniors in Public and Private Schools 102

5.1.2 Percent of Seniors in Public and Private Schools Reporting They Have Completed Selected Academic Courses 106

5.1.3 Percent of Seniors in Public and Private Schools Where Selected Academic Courses are Offered Who Have Taken These Courses 109

5.1.4 Percent of Seniors in Public and Private Schools Expecting to Finish 4-Year College Who Have Taken Selected Academic Courses Where Thesee Courses are Offered 110

5.2.1 Percent of Sophomores and Seniors in Public and Private Schools Participating in Various Extra-Curricular Activities 112

5.2.2 Differences in Sophomore and Senior Participation in Extracurricular Activities in Public and Private Schools 115

5.3.1 Percent of Sophomores and Administrators Reporting That Certain Rules are Enforced at Their Schools .. 117

5.3.2 Percent of Sophomores and Seniors in Public and Private Schools Rating Their Schools' Effectiveness and Fairness of Discipline "Excellent" or "Good" . 119

5.3.3 Percent of Sophomores and Seniors in Public and Private Schools Rating Their Teachers' Interest in Students as "Excellent" 121

5.4.1 Average Time Spent on Homework by Sophomores and Seniors in Public and Private Schools 127

5.4.2 Average Time Spent Watching Television by Sophomores and Seniors in Public and Private Schools 128

5.4.3 Percentage Distributions in Public and Private Schools of Students Interested in School and of Students Liking to Work Hard in School 130

5.4.4 Percent of Sophomores and Seniors in Public and Private Schools Reporting Good Attendance Practices 132

5.4.5 Assessments of Disciplinary Problems by Administrators and Students in Public and Private Schools 134

5.5.1 Percent of Sophomores and Seniors in Public and Private Schools Expressing a Strong Sense of Fate Control 141

5.5.2 Percent of Sophomores and Seniors in Public and Private Schools Giving High Self-Esteem Responses . 143

5.5.3 Percentage Distribution by Grade and School Type of the Perceived Importance Among White Students of Working to Correct Social and Economic Inequalities 144

6.1.1 Means and Standard Deviations for Sophomore Test Scores in Public and Private Schools 152

6.1.2 Means and Standard Deviations for Senior Test Scores In Public and Private Schools 153

6.1.3 Mean Scores on Subtests That are Identical for Seniors and Sophomores in Public and Private Schools 154

6.1.4 Percentage Distributions of Expected Educational Attainments by Grade in Public and Private Schools . 163

6.1.5 Percentage Distributions for Time of Entry to College for Sophomores and Seniors in Public and Private Schools 164

6.1.6 Percentage Distributions of Job Plans for Those Seniors in Public and Private Schools Who Plan to Work Full Time Next Year 166

6.2.1 Estimated Increments to Test Scores in Public and Private Schools With Family Background Controlled . 171

6.2.2 Estimated Sophomore-to-Senior Achievement Growth in Catholic and Other Private Schools Beyond That in Public Schools for Students with Average Background in Income, Parental Education, Race, and Ethnicity 175

6.2.3 Estimated Differences at Grades 10 and 12 Between Achievement of Students with Parents of Different Educational Levels, Different Race, and Different Ethnicity 178

6.2.4 Total Rosters of Sophomores and Seniors in Sampled Schools for Estimating Dropouts Between Sophomore and Senior Years 182

6.2.5 Estimated Sophomore-Senior Gains in Test Scores and Learning Rates, With Corrections for Dropouts Missing from Senior Distribution 184

6.2.6 Estimated Increments in Educational Expectations for Students in Public and Private Schools With Family Background Controlled 187

6.2.7 Percent of Seniors and Sophomores in Public and Private Schools Indicating Expectations to Attend College at Earlier Grades: Actual Percent and Standardized Percent for Students With Average U.S. Parental Education, Income, Ethnicity, and Race 189

6.2.8 Differences in Logits for College Expectations, Standardized for Background, Between Each Type of Private Schools and the Public Schools 193

6.2.9 Educational Expectations for Students with Extremes of Parental Education Otherwise Standardized to U.S. Parental Background in Public and Private Schools 195

6.3.1 Accounting for Reading, Vocabulary, and Mathematics Scores: Regression Coefficients and Means for Absenteeism, Lateness, and Cutting Classes, in Analysis Which Includes Family Background and Grade Level 199

6.3.2 Achievement Losses in the Public Schools Relative to Each Type of Private School Due to Higher Levels of Absenteeism, Lateness, and Cutting Classes in the Public Schools 202

6.3.3 Achievement Differences in Public Schools Relative to Private Schools Due to Larger Size, and Achievement Losses of Private Schools Relative to Public Schools Due to Smaller Size 205

6.3.4 Differences Between Private and Public Schools in Levels of Various School Characteristics and Student Behavioral Variables Standardized to Students with Family Backgrounds Like That of the Average Sophomore in Public Schools 210

6.3.5 Achievement Differences Between Private and Public Schools Due to Various Areas of School Functioning, for Students with Family Backgrounds Like That of the Average Sophomore in Public Schools 213

6.3.6 Differences Between Private and Public Schools in Levels of Behavior Problems Due to Differences in Levels of Disciplinary Climate and on Achievement Through Effects on Behavior Problems (Student Background Statistically Controlled) 218

APPENDIX

A.1.1 Correction Factors and Sample Sizes for Classes on Which Most Percentages from Student Data in Report Are Based

A.1.2 Approximate Standard Errors for Percentages Based on Principal Classifications Used in Report

A.1.3 Numbers of Students in Schools in Sample, for Major Subclasses Used in Report

A.1.4 Weighted Numbers of Students and Schools Represented for Major Subclasses Used in Report

A.4.1 Regression Coefficients and Explained Variance (R^2) for Table 6.2.1: Sophomores

A.4.2 Regression Coefficients and Explained Variance (R^2) for Table 6.2.1: Seniors

A.4.3 Means for Regression Coefficients in Table 6.2.1

PREFACE

The data and analyses presented in this report are from the first (1980) wave of the National Center for Education Statistics study, HIGH SCHOOL AND BEYOND, a longitudinal study of U.S. high school seniors and sophomores. This study was conducted for NCES by the National Opinion Research Center at the University of Chicago.

There are 1,016 high schools in the sample, and a target number of 36 seniors and 36 sophomores in each of the schools. In many schools, however, the actual numbers of seniors and sophomores was less than the target number for two reasons. First, some students (or in some cases, their parents) declined to participate, exercising this right in a voluntary survey. Second, some schools had class sizes smaller than 36 seniors or sophomores. Thus the total number of students participating in the survey is 58,728.

A detailed report on sample design and sampling errors will be published at a later date. Briefly, the sample was a two-stage stratified probability sample with schools drawn proportional to their size and 36 sophomores and seniors drawn randomly from each selected school. Substitutions were made for noncooperating schools in those strata where it was possible, but not for students. Refusals, absences, and parental refusals at the student stage resulted in an 84 percent completion rate for students.

Several special strata were included in the sample with probabilities higher than their occurrence in the population, to allow for special study of certain types of schools or students. These included:

- Hispanic strata, with probabilities of selection to insure sufficient numbers of Cuban, Puerto Rican, and Mexican students for separate analysis
- A stratum of Catholic schools with high proportions of black students
- A stratum of non-Catholic private schools, oversampled to insure enough schools for analysis
- A stratum of public alternative schools
- A stratum of private schools with high-achieving students

For analyses that do not separate out these strata, the strata are downweighted to their proper population weights, so that the weighted sample is representative of high school seniors and high school sophomores in the United States and in each of the nine Census regions (subject to the points mentioned above, substitution of schools and completion rates).

Information of several sorts was obtained in the survey. Students completed questionnaires, about one hour in length, and took a battery of tests with a total testing time of about one and one-half hours. School officials completed questionnaires covering items of information about the schools. Finally, teachers completed checklists concerning students in the sample whom they had had in class to provide information beyond the students' own reports about themselves.

This report is one of a set of five that constitutes baseline descriptions and initial analyses of a very rich dataset. The study was designed to be relevant both to many policy issues and to many fundamental questions concerning youth development and educational institutions. It is intended to be analyzed by a wide range of users, from those with immediate policy concerns to those with interests in more fundamental or long-range questions. The data are available at a nominal fee from the National Center for Education Statistics.

As succeeding waves of data on a subsample of these students become available (at approximately two-year intervals), the richness of the dataset, and the scope of questions that can be studied through it, will expand. In addition, use of the data in conjunction with NCES's study of the cohort of 1972 seniors (also available from NCES), for which data at five time points are now available, will enrich the set of questions that can be studied.

ACKNOWLEDGMENTS

The initial design of HIGH SCHOOL AND BEYOND was created by the Longitudinal Studies Branch of the National Center for Education Statistics. Edith Huddleston, NCES project officer for HS&B, and William Fetters, mathematical statistician, have guided this project since its inception, and have been responsible for many aspects of the research design.

A study of this scope and magnitude would not have been possible without the active cooperation of many persons at various levels of educational administration: Chief State School Officers, Catholic Archdioceses and other private school organizations, principals and teachers in the schools, and of course, the students and their parents. The expertise, support, and persuasiveness of numerous study coordinators at participating schools was especially critical to the successful conduct of the study. Those who will use these data for the study of American education are deeply indebted to all these people.

A second debt is owed to all those people on the field and project staff of HIGH SCHOOL AND BEYOND, whose efforts brought into being the data that will make possible the study of issues involving young people and their schools, data on which the present report is based.

The design of HIGH SCHOOL AND BEYOND by the National Center for Education Statistics and its modifications by NORC, were greatly aided by consultations with many groups interested in American education and by continuing guidance from the project's National Planning Committee.

Of the support services at NORC that, by efforts beyond the call of duty, made possible the completion of this report at this time two deserve special mention: Data Processing and Word Processing, both of which have our deep gratitude.

SUMMARY OF MAJOR FINDINGS

One of the emerging policy questions in American education in recent years has been the question of the role that private schools should play. Although any answer to this question depends in part on values, it also depends on facts. First, how well do public and private schools work for children? Are private schools divisive, and, if so, along what lines? Are private schools more easily managed than public schools, and, if so, why?

Recent policy discussions concerning private schools in the United States have included both proposals that would increase their role in American education and proposals that would decrease their role. As an example of the latter, it has been proposed that private schools meet a racial composition criterion in order to maintain tax-exempt status. On the other side, there have been proposals for tuition tax credits for private schools, and, at the state level, proposals for educational vouchers.

These policy proposals are based in part on assumptions about the current roles and current functioning of public and private schools in America. The report is intended to provide evidence relevant to such proposals.

Using data collected in the first wave of the National Center for Education Statistics study, HIGH SCHOOL AND BEYOND, the report covers four major areas of interest in the public and private schooling issue: student composition within the public and private sectors (chapter 3), resources available in these schools (chapter 4), the functioning of these schools (chapter 5), and the outcomes for students in the schools (chapter 6). The responses in 1980 from representative samples of approximately 58,000 sophomore and senior students in 1,015 public and private secondary schools, as well as their respective school officials, are used in the analysis. Catholic schools, which constitute about two-thirds of the total private sector, and other private schools are separately compared to public schools in the report.

Listed below are a number of the premises underlying policy proposals that would increase or decrease the role of private education in the United States. Following each of these assumptions is a brief summary of our relevant findings.[1]

Premises underlying policies that would increase the role of private schools:

1. Private schools produce better cognitive outcomes than do public schools (chapter 6).

The evidence from chapter 6 is that private schools do produce better cognitive outcomes than public schools. When family background factors that predict achievement are controlled students in both Catholic and other private schools are shown to achieve at a higher level than students in public schools. The difference at the sophomore level, which was greater for Catholic schools than for other private schools, ranged from about a fifth of the sophomore-senior gain to about two-thirds the size of that gain (i.e., from a little less than half a year's difference to something more than one year's difference). This evidence is subject to a caveat: despite extensive statistical controls on parental background, there may very well be other unmeasured factors in the self-selection into the private sector that are associated with higher a achievement.

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[1] The points listed below constitute the body of the concluding chapter (7).

When we examined gains from the sophomore to the senior year in the three sectors, the first evidence was that students from comparable backgrounds make greater gains in other private schools than in public schools, but that students in Catholic schools do not. However the much greater sophomore-senior dropout in public schools than in either the Catholic or other private schools shows that the apparent public school gains have a considerable upward bias, leading to the conclusion that greater cognitive growth occurs between the sophomore and senior years in both private sectors than in the public sector.

A caveat to all these results is shown by the high-performance public and private schools. Performance was much higher in both of these sets of schools, than in any of the three sectors (section 6.1), although these schools could not be separately studied in the extended analysis of section 6.2 because of ceiling effects in achievement scores.

2. Private schools provide better character and personality development than do public schools (chapter 5).

Little evidence on character and personality development was provided in this report. However, students in other private schools show both higher levels of self-esteem and fate control than sophomores and higher gains from the sophomore to senior year than students in public or Catholic schools. The inference that there is greater growth on these dimensions in other private schools is strengthened by the fact that students in high-performance private schools showed even higher levels as sophomores, and similarly high sophomore-senior gains, while students in high-performance public schools did not, despite the fact that the parental backgrounds of students in the latter schools are higher than those in other private schools. The fact that the other private and high-performance private schools have less than half the student-teacher ratio than schools in the other sectors suggests that the difference might be due to this.

3. Private schools provide a safer, more disciplined, and more ordered environment than do public schools (chapter 5).

The evidence is strong that this premise is true. The greatest difference found in any aspect of school functioning between public and private schools was in the degree of discipline and order in the schools (sections 5.3, 5.4). The Catholic and other private schools appear somewhat different in their discipline and behavior profiles, with students in other private schools reporting more absences and class cutting but also more homework, fewer fights among students, and greater teacher interest in students. However, in all these respects, both sectors showed greater discipline and order than the public schools.

4. Private schools are more successful in creating an interest in learning than are public schools (chapter 5).

There is little evidence to confirm or disconfirm this premise in the report. The sectors differ only slightly in student responses to the two direct questions concerning interest in school, and there is not much to be inferred from indirect evidence presented in the report.

5. Private schools encourage interest in higher education and lead more of their students to attend college than do public schools with comparable students (chapter 6).

The evidence on this premise is toward a positive answer, but it is not extremely strong evidence. There is some evidence that students have higher college aspirations and expectations in private schools than do students from comparable backgrounds in public schools (Table 6.2.).

The report contains no evidence on this premise.

6. Private schools are smaller and thus bring about greater degrees of participation in sports and other activities than do public schools (chapter 5).

The evidence shows that this premise is true for other private schools, but not for Catholic schools (though Catholic school students report highest school spirit, and other private school students lowest); The fact that Catholic schools are smaller in size than public schools does not result in increased participation in extracurricular activities. In addition, participation grows between the sophomore and senior years in other private schools, while it declines slightly in Catholic and public schools.

7. Private schools have smaller class size, and thus allow teachers and students to have greater contact (chapter 4).

The other private schools have sharply lower student-teacher ratios than the public schools, while the Catholic schools have slightly higher ratios. There are fewer than half the students per teacher in other private schools than in public or Catholic schools (Table 4.2.1). No direct evidence on contact between students and teachers is presented.

8. Private schools are more efficient than public schools, accomplishing their task at a lower cost.

The report contains no evidence on this premise.

Premises underlying policies that would decrease the role of private schools:

1. Private schools are socially divisive along income lines, creaming the students from higher income backgrounds, and segregating them into elite schools (chapter 3).

The evidence on this premise works in two directions. First, among the three major sectors, the other private schools contain students from somewhat higher income backgrounds and the Catholic schools contain students from slightly higher income backgrounds than the public schools. The differences are primarily at the highest and lowest income levels, with all three sectors having a majority of students in a broad middle income category ranging from $12,000 to $38,000 a year, and similar proportions at different levels within this range. Second, the internal segregation by income within each sector goes in the opposite direction, with the public sector showing slightly higher income segregation than either the Catholic or other private sectors. However, income segregation is not high within any sector. The end result of these two forces acting in opposite directions is that U.S. schools as a whole show slightly greater segregation by income than would be the case if private school students of differing income levels were absorbed into the public schools in the same way that public school students of differing income levels are currently distributed among schools.

2. Private schools are divisive along religious lines, segregating different religious groups into different schools (chapter 3).

The evidence is strong that this is true. Besides the 30 percent of private schools that are Catholic, enrolling 66 percent of all private school students, 25 percent of private schools, enrolling 12 percent of private school students, are affiliated with other religious denominations. Examining religious segregation solely in the Catholic/non-Catholic dimension, the report shows that the great majority of Catholics are in public schools, but that over 90 percent of the students in Catholic schools are Catholic. Within each sector, the Catholic/non-Catholic segregation is least in the Catholic schools themselves, greatest in the other private schools. The overall impact of the between-sector segregation and the differing segregation within sectors is, as might be expected, that schools in the United States are more segregated along Catholic/non-Catholic lines than they would be if private school students were absorbed into the public schools.

3. Private schools are divisive along racial lines, in two ways: they contain few blacks or other minorities, and thus segregate whites in private schools from blacks in public schools; and the private sector itself is more racially segregated than the public sector (chapter 3).

The evidence shows that the first of these premises is true with respect to blacks but not with respect to Hispanics and that the second is not true with respect to blacks or Hispanics. The end result with respect to Hispanics is that the segregation of U.S. schools is little different from what it would be if there were no private schools.

Catholic schools enroll about half as high a proportion of blacks as the public schools, and other private schools only about a quarter as high a proportion. Internally, however, the other private sector is least racially segregated and the public sector by far the most segregated. The end result of these two opposing forces, between-sector and within-sector, is that the segregation of black and white students in U.S. schools is no greater and no less than it would be if there were no private schools, and their students were absorbed into the public sector, distributed among schools as public sector black and white students are now distributed.

4. Private schools do not provide the educational range that public schools do, particularly in vocational and other nontraditional courses or programs (chapter 4).

The evidence on this premise is that it is correct. Schools in both the Catholic and other private sectors provide primarily academic programs and have few vocational or technical courses. Even in academic areas, however, some of the smaller schools in the other private sector have a limited range of subjects, as evidenced by the fact that 44 percent of students in the other private sector are in schools with no third-year foreign language courses. The lesser educational range of the private sector is also shown by the more comprehensive character of the high-performance public schools compared to the high-performance private schools.

5. Private schools have a narrower range of extracurricular activites, and thus deprive their students of participation in school activities outside the classroom (chapter 5).

This premise is almost the direct opposite of premise 7 on the other side, so the answer is the same as was given there. Students in Catholic and public schools show about the same amount of participation in extracurricular activities, while students in other private schools show more, and participation is higher for seniors than for sophomores Thus this premise is not correct.

6. Private schools are unhealthily competitive, and thus public schools provide a healthier affective development (chapter 5).

The report provides no direct evidence on this premise, but the indirect evidence suggests that something like the reverse is true for the comparison between the other private and public schools. Self-esteem and fate control are both higher in other private schools than in public schools, and the sophomore-senior gain is greater.

7. Facilitating the use of private schools aids whites more than blacks and those better off financially at the expense of those worse off; as a result, it increases racial and economic segregation (chapter 3).

An examination of the predicted effect of a $1,000 increase in income for all income groups shows that this would increase the proportion of blacks and Hispanics in the private sector, as well as the proportion of students from lower income families. Because a tuition tax credit or a school voucher would even more greatly facilitate private school enrollment for students from lower income families relative to students from higher income families, we can expect that either of those policies would even more greatly increase the proportion of blacks or students from low-income backgrounds in the private sector (primarily in the Catholic sector). If either of these policies failed to increase the proportion of blacks or students from low-income families in private schools relative to that in the public schools, then, overall, either of these policies would provide greater financial benefit to whites than to blacks, or to higher income than to lower income families, because of the tuition reductions for parents of those students currently enrolled in the private sector. If one considers only new entrants into the private sector, the evidence from the hypothetical experiment, together with the fact that a tuition tax credit or voucher plan would likely be more progressive in its effect than a $1,000 increase in income, indicates that blacks, Hispanics, and low-income families would differentially benefit. To consider the educational rather than the financial benefits means to consider only the new entrants into the private sector, for it is only their education that would be changed; thus blacks and Hispanics would differentially benefit educationally.

The evidence indicates that facilitating use of private schools through policies of the sort described above would not increase segregation along racial or economic lines but would decrease it (though the evidence indicates that religious segregation would increase). Such policies would bring more blacks, Hispanics, and students from lower income backgrounds into the private schools, thus reducing the between-sector segregation, and these students would be moving from a sector of high racial segregation to a sector of low racial segregation, as well as from a sector slightly higher in economic segregation to one slightly lower.

Additional results relevant to the policy question of facilitating or constraining use of public schools:

1. At middle and higher income levels, the increase in probability of enrollment of blacks with increase in income is higher than that of whites. At virtually all income levels, both the probability of enrollment of Hispanics and the increase in that probability with income are higher than for non-Hispanic whites. Comparing Catholics with Catholics and non-Catholics with non-Catholics shows that blacks have the highest absolute rate of enrollment in Catholic schools, at low as well as high income levels and among both Catholics and non-Catholics, while Hispanics have the lowest rate. In other private schools, black enrollment is low at all income levels except the very highest.

2. Catholic schools more nearly approximate the "common school" ideal of American education than do public schools, in that the achievement levels of students from different parental educational backgrounds, of black and white students, and of Hispanic and non-Hispanic white students are more nearly alike in Catholic schools than in public schools. In addition, the educational aspirations of students from different parental educational backgrounds are more alike in Catholic than in public schools. Comparing public and other private schools shows that students in other private schools with parents of differing education have greater differences in scholastic achievement, while public school students with differing parental education have greater differences in educational aspirations.

3. Important factors in bringing about higher scholastic achievement in private schools than in public schools are the greater academic demands and more ordered environment in the private schools (section 6.3).

The evidence shows not only that the sectors differ greatly on these dimensions, but also that within the public schools students who are better disciplined and are in schools with more ordered environments achieve more highly.

It may or may not be useful to attempt to sum up the overall implications for the premises underlying policy arguments to facilitate or constrain the use of private schools. Some of the premises on each side are confirmed, some on each side are disconfirmed. It is hard, however, to avoid the overall conclusion that the factual premises underlying policies that would facilitate use of private schools are much better supported on the whole than those underlying policies that would constrain their use. Or, to put it another way, the constraints imposed on schools in the public sector (and there is no evidence that those constraints are financial, compared with the private sector) seem to impair their functioning as educational institutions, without providing the more egalitarian outcomes that are one of the goals of public schooling.

CHAPTER 1

INTRODUCTION

American elementary and secondary education has been overwhelmingly education in public schools, supported by taxes and governed by local school boards. There have been changes recently in the structure of support and control, with state and Federal governments playing increasingly important roles in both respects. But the overwhelmingly public-school character of elementary and secondary education has remained largely unchanged. For many years, the percentage of American children in private schools has been in the neighborhood of 10 percent, as it is currently.

However, the role of private schools in American education has emerged as an important policy question in recent years. Although any answer to this question depends in part on values, it also depends on facts--facts that address such questions as: How well do public and private schools work for children? Do they work differentially well for different types of children? Are private schools divisive, and, if so, along what lines? Are private schools more efficiently managed than public schools, and, if so, why?

Recent policy discussions concerning private schools in the United States have included both proposals that would increase their role in American education and proposals that would decrease their role. On the increase side, there have been proposals for tuition tax credits for private schools, and a bill to provide such credits was narrowly defeated in Congress. At the state level, proposals for educational vouchers have been discussed, and in California an attempt to get such a proposal on the ballot for referendum was made recently. On the decrease side, the Internal Revenue Service recently proposed that a racial composition requirement, more restrictive than that imposed on most public schools, be a criterion for maintaining tax-exempt status. This is one of a series of attempted policy interventions to constrain the use of private schools by whites escaping a mandatory integration program in the public schools.

These conflicting policy efforts are all based on certain assumptions about the role of private and public schools in the United States. Examining the assumptions, and showing the falsity of those that are not correct, will not in itself resolve the policy questions concerning the roles of public and private education in America. Those policy questions include certain value premises as well, such as the relative roles of the state and the family in controlling a child's education. This examination will, however, strengthen the factual base on which the policy conflicts are fought. To aid in doing this is the aim of this report.

It is useful to begin the process by examining some of the most widely held premises underlying policy proposals that would affect the role of private education in the United States. It is these premises, not the policy proposals, for which research like this can provide information.

Premises underlying policies that would increase the role of private schools:

1. Private schools produce better cognitive outcomes than do public schools with comparable students.
2. Private schools provide better character and personality development than do public schools.

3. Private schools provide a safer, more disciplined, and more ordered environment than do public schools.[1]

4. Private schools are more successful in creating an interest in learning than are public schools.

5. Private schools encourage interest in higher education and lead more of their students to attend college than do public schools with comparable students.

6. Private schools are smaller, and thus bring about greater degrees of participation in sports and other activities than do public schools.

7. Private schools have smaller class sizes, and thus allow teachers and students to have greater contact.

8. Private schools are more efficient than public schools, accomplishing their educational task at lower cost.

Premises underlying policies that would decrease the role of private schools:

1. Private schools are socially divisive along income lines, creaming the students from higher income backgrounds and segregating them in elite schools.

2. Private schools are divisive along religious lines, segregating religious groups in separate schools.

3. Private schools are divisive along racial lines, in two ways: they contain few blacks or other minorities, and thus segregate whites in private schools from blacks in public schools; and the private sector itself is more racially segregated than the public sector.

4. Private schools do not provide the educational range that public schools do, especially in vocational and other nontraditional courses or programs.

5. Private schools have a narrower range of extracurricular activities, and thus deprive their students of participation in school activities outside the classroom.

6. Private schools are unhealthily competitive, and thus public schools provide a healthier affective development.

7. Facilitating the use of private schools aids whites more than blacks and those better off financially at the expense of those worse off; as a result, it increases racial and economic segregation.

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[1] Some authors go so far as to argue that private schools reduce crime, through reducing either in-school crime (a significant portion of teen-age crime) or out-of-school crime (see West 1980 and Lott and Fremling 1980).

Some of these premises underlying school policies are held by policy-makers whose decisions affect the relative roles of private and public schools in America, and some are held by parents who choose between private and public schools for their children. Thus information on the correctness of these premises is useful not only for educational policy-making in a nation, state, or city, but also for parental choice. Parents have a good deal of direct information on some of the questions implicit in these premises (such as the level of discipline imposed in the public and private schools in their locale), but almost no information on others.

The current study, at its present stage, can provide better information on some of these questions than on others, because different questions require information about different aspects of schools. Some of the questions concern the effects of schools on students within them. Premises 1, 2, 4, and 5 from the first list and number 6 from the second list raise questions of this sort. These questions are the most difficult to answer, because the experimental design implicit in most of these questions (the same child in a public school or a private school would develop differently) is not possible in practice. Consequently, statistical analyses must be substituted for an experimental design, and such analyses are always subject to problems of inference. If data from more than one point in a child's school career are available, the statistical analysis is more powerful, and some of the problems of inference are eliminated. Such data do not now exist in this study, although they will be available for the sophomores in two years. For the present, substitute statistical techniques are used, some of which make use of the fact that information is available on two cohorts. These statistical techniques will be discussed at appropriate points.

A second set of the questions requires information on the distribution of students among schools. Premises 1, 2, and 3 from the second list are of this sort. Obtaining such information is much less problematic than obtaining information on effects of schools. It is directly available for the sample of schools and sample of students in the study. The only inferential problem is estimation of the characteristics of all U.S. schools from those of the sample. Because these samples were drawn with known probabilities from the universe of U.S. schools of different types, this estimation can be carried out without difficulty.

There is, however, sometimes a question of another type lurking behind those of simple student distribution: What effect would a policy that increased or decreased the number of students in private schools have on the distribution of students? For example, the question might be raised: What would be the effect of tuition tax credits on racial segregation in the schools? Premise number 7 in the second list raises a question of this sort.

The answers to this kind of underlying question are not so directly accessible as the answer to the simple question of the current distribution of students. There are additional problems of inference involved, which means that these questions can be answered with less certainty than the questions about current distribution.[1]

A third type of question involves comparing characteristics of the public and private schools themselves. These characteristics include both the resources of public and private schools and what goes on in the schools. Premises 3, 6, 7, and 8 from the first list and 4 and 5 from the second are related to such questions. Information about school resources and about what goes on in the schools was reported at various points in the school and student questionnaires, and, like the information on distribution of students among the schools, is inferred for U.S. schools as a whole simply by the inference from sample to universe.

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[1] An illustration of the difficulty of answering such questions conclusively is provided by recent and continuing conflicts over the anticipated effect of particular types of court desegregation decisions on white flight, and thus on the resulting degree of racial segregation in the schools.

These distinct sets of questions lend themselves nicely to structuring a report designed to provide a broad overview of public and private schools. Answers to these questions can be grouped into four major divisions: the student composition of public and private schools, the resources that go into public and private schools, the functioning of public and private schools, and the outcomes of public and private schooling. Or, put more simply, Who is in the schools? What resources go into them? What goes on? and What comes out? These four divisions, prefaced by a section on the geographic and size distribution of public and private schools, constitute the four analytic chapters of this report. A concluding chapter examines the premises outlined here in light of the findings of the analyses.

A word is necessary on the classification of schools used in the report. For much of the analysis, schools are classified not into two sectors, but into three--public, Catholic, and other private schools. This is done because Catholic schools constitute by far the largest single group of private schools, and constitute a less diverse array of schools than all private schools taken together. It would be useful to make various subdivisions among the other private schools, separating out the different religious subgroups and distinguishing the nonreligious schools according to some criterion, but that is outside the scope of this report. In further work with these data, carried out either by us or by other analysts, some such distinctions will be possible, in part because two special samples of schools were drawn: Catholic schools that had high proportions (30 percent or more) of black students in them, selected in addition to the representative sample of Catholic schools; and a special sample of "high-performance" private schools--the 11 private schools with the highest proportions of their graduating student bodies listed as semi-finalists in the 1978 National Merit Scholarship competition.[1]

In chapter 3 and parts of chapter 6 only the three sectors, public, Catholic, and other private, are compared. However, in chapters 4, 5, and 6 (section 6.1), two additional sets of schools are included in the comparison. These are the eleven high-performance private schools mentioned above, and a set of twelve high-performance public schools.[2] These schools are included to provide extremes that can better illuminate some of the research questions posed in the report. Because of the way they were drawn, these schools do not represent any other than themselves; thus they are not "sectors" like the public, Catholic, and other private sectors.[1] Further, the results reported for these high-performance private and public schools cannot be generalized to a larger population of schools or students, but they do suggest something about the character of schools that produces high-achieving students.[2]

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[1] A second criterion in selecting these schools was that no two schools would be drawn from the same state. Only one school was eliminated by this criterion. There is a submerged stratification in this mode of selection, since different norms for the National Merit Scholarship tests are used in different states. The eleven schools selected by this procedure do show broad geographic distribution. One of the eleven schools is Catholic, the other ten are non-Catholic.

[2] The twelve high-performance public schools were selected in exactly the same way as the eleven high-performance private schools, except that they were chosen from the sample of 894 public schools after the sample was drawn and data collected. Because they were not drawn from the total population of U.S. public schools, whereas the high-performance private schools were drawn from the more than 6,000 private schools in the country, the high-performance public schools are a somewhat less select set.

Note on statistical inference: Standard errors or other measures that show sampling variation are not presented in the text of this report. Information necessary for calculating approximate standard errors is given in the appendix A, p. A-1.

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[1] When the high-performance private schools are separated out from the two major private sectors, the results for those sectors, which are always reported in weighted form, are hardly affected by the loss, since the weights of the high-performance private schools, when part of the private school sample, are very small. Throughout this report, the tabulations and analyses for the Catholic and other private sectors do not include the specially sampled high-performance private schools, which, as explained above, affects the results for those sectors very little. The high-performance public schools are, however, included as part of the public sector in all tabulations and analyses, since they were drawn in the sample to represent particular strata including other high schools. To be perfectly consistent the private school sectors should have included the high-performance private schools; and the separate tabulations for the high-performance public schools should not include in their weights any weight for schools other than themselves. As pointed out above, however, that would hardly affect results obtained in this report.

[2] This probably constitutes a deficiency in the sample design in selection of the high-performance private schools. If the sample were being drawn again, we would prefer to see two subgroups like these, but representative of some identifiable segments of American private and public schools.

CHAPTER 2

THE SIZE AND GEOGRAPHIC DISTRIBUTIONS OF PUBLIC AND PRIVATE SECONDARY SCHOOLS

This chapter provides an overview of the distribution of public and private education in the United States, emphasizing how private education is distributed geographically and a few general characteristics of interest. These tabulations, unlike those in the remaining chapters of the report, are based on data for all schools in the United States. The data are from the NORC 1978 school universe tape, which was developed and compiled from several different sources.[1]

As observers have often noted, the diversity within the domain of private education is in many respects greater than the differences between public and private education in general. This diversity should of course not be lost sight of, but neither should it obscure the fact that for some purposes it is necessary to consider the private sector of American secondary education as a whole. This is particularly the case as private schools become increasingly implicated in government policies in education. Policies at the Federal and state levels that explicitly relate to private education are a relatively recent phenomenon, and information that can aid these policies is only slowly coming into existence.

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[1] The NORC school universe file was created from the following sources:

a) A school universe file for fall 1978, prepared by the Curriculum Information Center, Denver, Colorado, a private organization
b) A public school universe file for Fall 1978 constructed by the National Center for Education Statistics from the Fall 1978 Survey of Public Schools
c) A private school universe file for fall 1978 prepared under contract to the National Center for Education Statistics
d) A supplementary U.S. Civil Rights Commission file of a large sample of public schools in the United States, fall 1976

Because file (a) was the most complete file, grade spans and enrollments were used from that file if the school was on that file. Files b, c, and d were used to augment this file.

Because of the different source material, total numbers of schools and total enrollment differ slightly from those published in the 1978 Fall Enrollment Survey for public schools, and from the NCES Bulletin 80-B01 for private schools. No correction has been made for the change in cohort size between 1978 and 1979.

The Curriculum Information Center file contained no information on type of private school beyond the Catholic vs. non-Catholic classification. Consequently, in some tables of this chapter, a "private, non-Catholic unclassified category will be shown, consisting of the non-Catholic schools that did not appear in the NCES private school universe file.

To provide a general understanding of private schools while retaining a part of the diversity that is present among them, most of the analyses in this report treat private education in two broad sectors--Catholic and non-Catholic (or "other private," as the latter are termed). (These two are augmented by a third set, a group of specially selected high-performance schools referred to in chapter 1.) In this chapter, however, there is an effort to present some of the diversity that is lost with this dichotomization of private schools. In the next section, the classification of school types is expanded to include a breakdown of the "other private" category into "religious-affiliated" and "non-religious-affiliated" for comparision of public and private schools along geographic and enrollment lines. Then, in the second part of this chapter, where the focus shifts to selected characteristics of private secondary schools, additional distinctions within the religious-affiliated category are introduced to indicate some of the variability to be found there.

2.1 Enrollment and Geographic Comparisions of Public and Private Secondary Education

Table 2.1.1 shows the number of schools and estimated[1] student enrollments at the secondary level for public schools and various kinds of private schools. Of most interest in this table are the numerical division of American high school students between public and private schools (about 90/10 public/private, with two-thirds of the students in private schools found in Catholic schools) and the sizes of schools in each sector. As is shown in the sixth row of table 2.1.1, which contains the average high school enrollments in the different sectors, private secondary schooling tends on the average to be carried out in much smaller schools than does public schooling. It should be noted that the estimates of the number of high school students (grades 9 through 12) in each sector are not directly comparable to the enrollment figures that most commonly appear in this sort of tabulation. Those tabulations usually give the number of students enrolled in schools that offer secondary-level programs. As the number of grades in the average school of each sector (row 3 of table 2.1.1) shows, these two enrollment estimates are likely to differ considerably: the average number of grades in private schools with secondary-level programs is appreciably higher than that in public schools. This, of course, points to yet another

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[1] Since enrollment figures for the schools are only available for all grades in the school, the figures given here (and in the rest of this section) for grades 9 through 12 are estimates that may be subject to some error. The enrollment figures are computed by, first, obtaining the average number of students per grade (each school's total enrollment divided by the total number of grades in the school) and, second, by multiplying this average by the number of high-school-level grades that the particular school has. For schools that have only high-school grades, this of course equals the total enrollment.

TABLE 2.1.1

NATIONAL FIGURES FOR NUMBER OF SCHOOLS AND ESTIMATED ENROLLMENTS IN GRADES 9-12 IN PUBLIC AND PRIVATE EDUCATION, 1978-79 SCHOOL YEAR[a]

	U.S. Total	Public	Private				
			Total	Catholic	Other Religious Affiliation	Private with no Affiliation	Private Non-Catholic[b]
Secondary-level schools:							
Total number with secondary-level grades (9-12)[c]	24,132	17,822	6,310	1,861	1,552	2,296	601
Percent of total	100.0	73.9	26.1	7.7	6.4	9.5	2.5
Mean number of grades	6.0	4.9	9.2	5.1	10.9	11.2	10.1
Student enrollment:							
Estimated total number enrolled in grades 9-12 (000s)	14,866.4	13,508.4	1,359.0	900.8	168.6	223.8	64.8
Percent of total enrollment in grades 9-12	100.1	90.9	9.1	6.1	1.1	1.5	0.4
Mean enrollment per school in grades 9-12	616	758	215	484	109	97	108

SOURCE: NORC School Universe Tape.

NOTE: Details may not add to totals because of rounding.

[a] Schools with total enrollments of less than 25 students for all grade levels are excluded from these and all subsequent tabulations in this section.

[b] These non-Catholic private schools were on the CIC universe file but not the NCES file. Consequently, no information about affiliation exists beyond the fact that they are not Catholic schools.

[c] The number of schools listed has not been corrected on the basis of information obtained through the High School and Beyond sample. In the original sample of 1,122 schools, 103 were found that were not properly high schools having their own enrollment. (For example, many area vocational schools do not have students enrolled for graduation within them, but instead serve students from other schools, providing the vocational part of their program.) A new estimate was made of the size of the school universe when the schools represented by these schools were eliminated. This estimate gives 21,700 schools rather than 24,132.

sort of diversity, not discussed here, that research might examine--the differences in the age ranges of the average public and private school student's schoolmates.

Turning to geographic distributions, table 2.1.2 indicates that there is wide variability across regions in the percentage of high school students in private schools, ranging from 4.4 percent in the Mountain states and 5.4 percent in the West South Central region to 13 percent or more in New England and the Middle Atlantic states. The relative shares of the different types of private schools also show some striking differences over this level of aggregation. The Catholic share of American secondary education ranges from a high of 10 percent in the Middle Atlantic region to a low of 2 percent in the Mountain region.

The variability among states is of course more pronounced, as shown in table 2.1.3. Private education is strongest in Connecticut, where it enrolls nearly 17 percent of all high school students; Wyoming, at the other extreme, has only slightly over 1.5 percent of its students in private schools.

Within the private sector, the Catholic schools are with few exceptions strongest in the New England and Middle Atlantic states. Their share falls off dramatically, to under 1 percent, in the Carolinas and in a few of the Western states. Other religious affiliations are generally strongest through the southern Atlantic seaboard, in Tennessee, and in the Midwestern states of Michigan, Wisconsin, and Iowa.

Another distributional breakdown of interest concerns the locations of schools and students in urban, suburban, and rural localiies. Table 2.1.4 gives the percentages of the constituent schools of each of the five school types and the estimated high school enrollments in each of these settings.

TABLE 2.1.2

ESTIMATED PERCENTAGE DISTRIBUTION OF STUDENTS IN GRADES 9-12 IN PUBLIC AND PRIVATE SCHOOLS FOR EACH OF THE NINE CENSUS REGIONS: 1978-79 SCHOOL YEAR

Region	Total enrollment		Public	Private				
	Number (000s)	Percent		Total[a]	Catholic	Other Religious Affiliation	Private with no Affiliation	Private Non-Catholic
United States total ...	14,866	100.0	90.9	9.1	6.1	1.1	1.5	0.4
New England	876	100.0	86.2	13.8	8.1	0.7	4.7	0.4
Middle Atlantic	2,650	100.0	87.0	13.0	10.3	1.2	1.2	0.3
South Atlantic	2,201	100.0	91.9	8.1	3.3	1.6	2.6	0.6
East South Central ..	959	100.0	91.9	8.1	2.8	1.7	2.9	0.8
West South Central ..	1,427	100.0	94.6	5.4	3.5	0.7	0.9	0.3
East North Central ..	3,004	100.0	90.7	9.3	7.4	1.1	0.6	0.3
West North Central ..	1,180	100.0	91.1	8.9	6.9	1.1	0.5	0.4
Mountain	682	100.0	95.6	4.4	2.3	0.6	0.9	0.6
Pacific	1,888	100.0	92.4	7.6	4.7	1.1	1.2	0.5

SOURCE: NORC School Universe Tape.

[a] Details in private sector may not add to totals because of rounding.

TABLE 2.1.3

ESTIMATED PERCENTAGE DISTRIBUTION OF STUDENTS IN GRADES 9-12 IN PUBLIC AND PRIVATE SCHOOLS BY STATE: 1978-79 SCHOOL YEAR[a]

Region and State	Total enrollment		Public	Private			
	Number (000s)	Percent		Catholic	Other Religious Affiliation	Private with no Affiliation	Private Non-Catholic
New England							
Connecticut	230.3	100.0	83.1	9.0	0.9	6.2	0.8
Massachusetts	409.5	100.0	86.9	9.3	0.3	3.4	0.2
Maine	81.8	100.0	90.2	1.7	0.7	6.9	0.5
New Hampshire	60.2	100.0	88.0	4.1	2.3	5.5	0.1
Rhode Island	59.2	100.0	85.5	12.0	1.3	1.2	0.0
Vermont	35.3	100.0	87.0	4.1	0.2	8.8	0.0
Middle Atlantic							
New Jersey	550.9	100.0	88.6	9.6	.6	1.1	0.1
New York	1,212.8	100.0	86.5	10.1	1.8	1.2	0.4
Pennsylvania	886.3	100.0	86.6	11.0	0.8	1.2	0.4
South Atlantic							
Washington, D.C.	37.1	100.0	79.9	14.1	2.2	3.2	0.5
Delaware	46.7	100.0	85.6	10.6	1.3	2.3	0.2
Florida	489.1	100.0	89.4	4.2	2.4	3.3	0.8
Georgia	343.4	100.0	93.7	1.0	1.4	3.5	0.5
Maryland	268.9	100.0	86.5	9.2	1.6	1.7	0.9
North Carolina	328.4	100.0	95.3	0.5	1.2	2.4	0.7
South Carolina	223.0	100.0	94.0	0.8	1.5	3.2	0.5
Virginia	345.0	100.0	93.5	2.0	1.5	2.3	0.8
West Virginia	118.9	100.0	97.0	2.1	0.5	0.4	0.1
East South Central							
Alabama	268.5	100.0	93.7	1.1	1.5	3.1	0.5
Kentucky	255.0	100.0	91.6	6.4	0.6	1.1	0.3
Mississippi	164.7	100.0	90.6	1.5	0.8	5.0	2.1
Tennessee	270.6	100.0	91.0	2.0	3.3	3.0	0.7

TABLE 2.1.3--Continued

Region and State	Total enrollment		Public	Private			
	Number (000s)	Percent		Catholic	Other Religious Affiliation	Private with no Affiliation	Private Non-Catholic
West South Central							
Arkansas	133.2	100.0	96.3	1.6	0.6	1.1	0.5
Louisiana	270.8	100.0	85.4	10.3	0.8	2.5	0.9
Oklahoma	190.2	100.0	97.8	1.1	0.6	0.3	0.2
Texas	833.2	100.0	96.6	2.1	0.6	0.5	0.1
East North Central							
Illinois	809.9	100.0	88.2	10.1	0.8	0.7	0.2
Indiana	377.7	100.0	93.7	4.2	0.9	0.7	0.6
Michigan	666.8	100.0	91.5	5.9	2.0	0.5	0.2
Ohio	815.7	100.0	91.3	7.7	0.5	0.5	0.1
Wisconsin	333.6	100.0	90.4	6.8	1.8	0.5	0.5
West North Central							
Iowa	194.2	100.0	89.0	8.2	2.6	0.0	0.3
Kansas	143.5	100.0	93.3	4.9	0.3	0.6	0.9
Minnesota	306.2	100.0	93.4	4.8	1.1	0.5	0.2
Missouri	337.1	100.0	89.5	8.5	0.7	0.9	0.4
North Dakota	49.2	100.0	94.3	5.3	0.3	0.1	0.0
Nebraska	98.2	100.0	88.2	10.5	0.5	0.3	0.5
South Dakota	51.2	100.0	91.9	4.7	1.0	0.9	1.6
Mountain							
Arizona	168.2	100.0	95.2	2.6	0.4	1.2	0.6
Colorado	174.6	100.0	95.0	2.5	1.0	1.1	0.4
Idaho	51.4	100.0	97.7	0.9	0.4	0.4	0.6
Montana	54.9	100.0	93.9	4.3	0.5	0.9	0.5
New Mexico	85.2	100.0	94.3	1.9	0.9	1.5	1.4
Nevada	40.6	100.0	96.5	3.1	0.2	0.1	0.0
Utah	82.4	100.0	97.5	1.1	0.3	0.2	1.0
Wyoming	24.8	100.0	98.5	0.6	0.0	0.9	0.0

TABLE 2.1.3--Continued

Region and State	Total enrollment		Public	Private			
	Number (000s)	Percent		Catholic	Other Religious Affiliation	Private with no Affiliation	Private Non-Catholic
Pacific							
Alaska	27.9	100.0	97.2	0.9	2.0	0.0	0.0
California	1,425.3	100.0	92.0	5.2	1.0	1.3	0.5
Hawaii	59.0	100.0	85.0	6.7	4.0	3.4	0.9
Oregon	145.2	100.0	95.3	3.0	0.6	0.5	0.6
Washington	230.6	100.0	94.5	3.1	1.2	0.6	0.6

SOURCE: NORC School Universe Tape.

NOTE: Details may not add to totals because of rounding.

[a] Approximations derived from information on the schools' enrollments, the number of secondary-level grades, and the total number of grades in each school.

TABLE 2.1.4

PERCENTAGE DISTRIBUTION FOR SCHOOLS AND ESTIMATED ENROLLMENTS (GRADES 9-12) IN URBAN, SUBURBAN, AND RURAL COMMUNITIES BY SCHOOL SECTOR: 1978-79 SCHOOL YEAR

	U.S. Total	Public	Private				
			Total	Catholic	Other Religious Affiliation	Private with no Affiliation	Private Non-Catholic
Total number:							
Schools	24,131.0	17,822.0	6,309.0	1,860.0	1,552.0	2,296.0	601.0
Students (000s)	14,863.0	13,505.1	1,357.9	900.7	168.6	223.8	64.8
Schools:							
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Urban	15.9	11.5	28.2	22.0	26.7	35.6	22.5
Suburban	36.1	33.9	42.1	60.6	34.5	33.4	38.1
Rural	48.1	54.6	29.7	17.4	38.8	31.0	31.4
Students:							
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Urban	22.4	22.5	22.2	20.2	30.8	24.5	19.9
Suburban	47.9	46.7	60.0	68.6	45.7	42.3	38.6
Rural	29.7	30.9	17.8	11.3	23.5	33.2	41.5

SOURCE: NORC School Universe Tape, 1979.

It is apparent that the public and private sectors are distributed quite differently across these categories, in both schools and enrollments. Comparing public and private schools overall (columns 2 and 3), private schools tend to be substantially more concentrated in urban and surburban areas than do public schools, the majority of whch are rural-based. (Of course, as the list from the table shows, a far smaller percentage of students are in rural schools.) Within the private sector, the schools with no religious affiliation are more likely to be urban than the other types. Catholic schools are heavily concentrated in suburban communities and relatively rare in rural areas.

For overall public and private sector enrollments (columns 1 and 2), the differences are found in the suburban and rural areas. Owing largely to the high Catholic enrollments in the suburbs (68.6 percent of the Catholic high school students), the private sector is well above the national suburban average (column 1). When this finding is coupled with the fact that private education enrolls slightly below the national average in urban communities, a pattern somewhat contrary to expectation emerges. Research on Catholic education frequently assumes that Catholic enrollments are concentrated in urban areas (see Erickson 1978, p. 90). Furthermore, the suburban public schools are commonly believed to be of such quality that private schools are comparatively less distinctive and thus less attractive there. Over against these notions, table 2.1.4 shows that the private sector enrolls no greater a proportion of its students in the cities than the public sector does of its students, and that private education appears to be at its competitive strongest in the suburbs.

2.2 Selected Attributes of Private Secondary Schools

While the analyses presented in this report are carried out on private secondary education as a relatively undifferentiated whole vis-à-vis public secondary education, further research is clearly needed on the numerous lines of diversity within the private sector. The most important distinctions that can be drawn here appear to be between the religious- and not-religious-affiliated categories and, within the religious-affiliated category, among the schools of the various faiths. This section briefly examines a few of the more striking differences found in the structural arrangements of some of these principal divisions within private education.

Table 2.2.1 gives the numbers of schools and secondary enrollments for the not-religious-affiliated and the five largest religious-affiliated categories. Although the numbers of schools in the two categories are not greatly different, over 80 percent of the students are in religiously affiliated schools. (For discussions of the historical and doctrinal backgrounds of the various types of schools given in table 2.2.1, as well as others not included here, see Kraushaar 1972 and Erickson 1978).

Table 2.2.2 shows the distribution of various types of schools, classified by grade levels covered and curriculum. In general, the table shows, for types of curriculum, that there are few vocational-technical schools outside the public school system, but there are comparable percentages of special education schools and alternative schools, with some of each to be found in all types of schools.

Finally, table 2.2.3 shows the percentage of male, female, and coeducational schools among private schools of all affiliations, and

TABLE 2.2.1

SELECTED PRIVATE SCHOOL STATISTICS BY AFFILIATION OF SCHOOL: 1978-79 SCHOOL YEAR

Affiliation	Number of Schools With Secondary Grade Levels	Percent of Total Private Schools	Estimated Enrollment in Grades 9-12	Percent of Total Private Enrollment	Estimated Mean Student Enrollment in Grades 9-12
Total private	6,310	100.0	1,357,725	100.0	215.0
Non-Affiliated	2,296	36.4	223,772	16.5	97.5
Catholic	1,861	29.5	900,776	66.3	484.0
Baptist	510	8.1	42,340	3.1	83.0
Jewish	157	2.5	22,458	1.7	143.0
Lutheran	124	2.0	22,273	1.6	179.6
Episcopal	114	1.8	18,794	1.4	164.9
Other religious affiliation.	643	10.2	62,537	4.6	97.3
Non-Catholic unclassified[a] .	610	9.6	65,033	4.8	106.6

SOURCE: NORC School Universe Tape.

[a] These schools, except four, are schools from the CIC file not found in the NCES file.

TABLE 2.2.2

NUMBERS AND PERCENTAGE DISTRIBUTIONS OF PUBLIC AND PRIVATE SCHOOLS BY TYPE OF SCHOOL: 1978-79 SCHOOL YEAR

Type of School	Total Schools		Secondary Only	Combined Elementary-Secondary	Special Education	Vocational-Technical	Alternative
	Number	Percent					
All schools	18,951	100.0	75.0	18.0	4.0	1.5	1.4
Public	13,429	100.0	90.1	7.0	0.1	2.2	0.5
Private:							
No affiliation	2,293	100.0	16.7	50.6	25.2	0.2	7.1
Catholic	1,688	100.0	83.1	7.6	7.3	0.6	1.2
Baptist	510	100.0	3.9	95.1	0.2	0.0	0.2
Jewish	157	100.0	45.2	48.4	3.8	0.6	0.6
Lutheran	124	100.0	52.4	39.5	7.3	0.0	0.8
Episcopal	114	100.0	45.6	49.1	1.8	0.0	3.5
Other affiliation .	643	100.0	16.0	78.9	2.3	0.2	2.3

NOTE: Details may not add to totals because of rounding.

SOURCE: This table is based only on schools that appeared on the NCES school universe file; excludes schools in the Curriculum Information Center file for which the NCES file had no data.

table 2.2.4 the percentage of boarding schools among them. As indicated earlier, the affiliation breakdowns used here are not used in later chapters, which are based on the High School and Beyond sample of schools and students. These tables thus serve to give some sense of the kind of schools contained within the private sector, especially the non-Catholic private sector (or, as it is called later, the "other private" sector).[1]

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[1] Data from NCES on private school enrollments for the 1978-79 school year show that about 80 percent of all students who attend private "secondary only" schools are in Catholic schools. The figure of 66 percent given in table 2.2.1 reflects the fact that a great number of private, non-Catholic high school students attend schools that are classified as "combined elementary and secondary."

We are indebted to Roy Nehrts from NCES for the tabulations on private schools, and to the technical report of the Sage group (McLaughlin and Wise 1980).

TABLE 2.2.3

NUMBER AND PERCENTAGE DISTRIBUTIONS OF PRIVATE SCHOOLS WITH DIFFERENT AFFILIATIONS, BY SEX OF STUDENTS SERVED; 1978-79 SCHOOL YEAR[a]

Affiliation	Total Schools		Males Only	Females Only	Both Males and Females
	Number	Percent			
Total private	5,529	100.0	9.2	9.7	81.1
No affiliation	2,292	100.0	5.9	2.6	91.5
Catholic	1,691	100.0	16.6	25.6	57.9
Baptist	508	100.0	0.8	0.0	99.2
Jewish	157	100.0	40.1	14.7	43.2
Lutheran	124	100.0	1.6	0.0	98.4
Episcopal	114	100.0	14.0	11.4	74.6
Other	643	100.0	1.2	1.1	97.7

SOURCE: NORC School Universe Tape.

NOTE: Details may not add to totals because of rounding.

[a] This table is based only on schools that appeared on the NCES school universe file; it escludes schools in the Curriculum Information Center file for which the NCES file had no data.

TABLE 2.2.4

NUMBER AND PERCENTAGE DISTRIBUTIONS OF SCHOOLS WITH DIFFERENT AFFILIATIONS BY DAY-BOARDING MIX: 1978-79 SCHOOL YEAR [a]

Affiliation	Total Schools		Day Only	Boarding Only	Mixed: Day and Boarding
	Number	Percent			
Total private	5,528	100.0	82.9	3.9	13.2
No affiliation	2,293	100.0	77.5	6.0	16.6
Catholic	1,691	100.0	89.8	2.7	7.6
Baptist	507	100.0	97.6	0.6	1.8
Jewish	157	100.0	65.0	3.2	31.9
Lutheran	124	100.0	84.7	1.6	13.7
Episcopal	114	100.0	50.0	7.0	43.0
Other affiliation .	642	100.0	82.1	2.7	15.3

SOURCE: NORC School Universe Tape.

[a] This table is based only on schools that appeared on the NCES school universe file; it excludes schools in the Curriculum Information Center file for which the NCES file had no data.

CHAPTER 3

THE STUDENT COMPOSITION OF PUBLIC AND PRIVATE SCHOOLS

This chapter addresses a series of questions about the student composition of public and private schools. A major criticism of policies designed to aid private education has been that private schools tend to be divisive along economic, religious, and racial lines. This has been perhaps the principal argument against such aid.

There are two wholly different issues of economic, religious, and racial segregation raised by the existence of private schools. The first, and the one to which most attention has been given, is the segregation between the public sector and the private sector. The second is the segregation that exists among schools within each sector.

Although these issues are different, they are related, for the criticism that private schools are divisive along economic, religious, or racial lines is a criticism that points to both forms of segregation. First, the existence of a private school alternative allows those with financial resources to segregate themselves from the remainder in public school; second, the existence of choice among private schools facilitates segregation along these lines within the private sector itself. If, for example, minorities who do attend private schools are concentrated in schools enrolling a small proportion of whites, then even a large proportion of minority students in the private schools is hardly a rebuttal to the charge that private education functions to increase social divisiveness along racial lines.

Yet matters are not so clear as the criticism would suggest, because choice exists within the public sector as well. Residential mobility, the principal way in which such choice is exercised, has increased over the years, and along with it the potential for families with sufficient resources to segregate their children from others, wholly within the public sector. Thus an examination of these issues is not merely to document the obvious. It is rather to examine segregating tendencies as they are manifested both within and between the sectors of education. For each issue area, then, the analysis begins with a comparison of segregation between sectors and moves on to a comparison of within-sector segregation. The basic method used for assessing the extent of within-sector segregation is described in appendix A.

In addition to the issues related to the racial and ethnic, economic, and religious compositions of private and public schools, a fourth substantive area, one that has been growing in importance in recent years, is addressed in this chapter: the education of handicapped children. Following the presentation on the other three issue areas are summary tables and a brief discussion of the role of the private sector in the education of the handicapped.

Finally, it is possible to make some predictions about the impact on segregation of potential policy changes that would draw students from the public sector into the private sector, or, conversely, changes that would draw more students into the public sector. Such predictions are made for racial and ethnic segregation and for economic segregation.

3.1 The Racial and Ethnic Backgrounds of Public and Private School Students

Issues related to the racial and ethnic compositions of the private schools constitute a major component of the controversy surrounding private education. Opposition to policies designed to facilitate private education is frequently based on the assumption that the private schools function as a means for whites to escape the racial integration that has been imposed in the public sector. As evidence of the segregating role that private education plays, critics assert that private schools on the whole enroll proportionately smaller numbers of minority students, particularly blacks and Hispanics.

Past research supports this claim. Kraushaar's (1972) survey of 251 private secondary schools found that, overall, less than 5 percent of the total enrollment was of racial or ethnic minority status. Nonetheless, supporters of private education assert that serious efforts have been made in recent years throughout a large segment of the private sector to reduce the underenrollment of minorities.

The High School and Beyond survey was designed to provide accurate representation of the black and Hispanic student population in American secondary education. The two-stage probability sample that was employed drew schools as the first-stage unit and a random sample of students within the selected schools as the second stage. Oversampling was carried out on seven types of schools, four of which were included to facilitate analyses concerned with black or Hispanic students. The normally sampled public schools included school racial composition as one of the stratification criteria.

Table 3.1.1 shows the distribution of white, black, and Hispanic students among the three school types, as well as the distributions for the sophomore and senior classes.[1] As prior research and public opinion lead us to expect, blacks are proportionately overrepresented in the public sector and underrepresented in the private sector. Averaging over grades 10 and 12 shows that the percentage of blacks in Catholic schools is a little under half that in the public schools, while the percentage of blacks in the other private schools is only about a fourth that in the public schools. The percentage of Hispanics in the private schools is much closer to that in the public schools than is the case for blacks. The percentage in the Catholic schools is as great as that in the public schools, and the percentage in the other private schools is about two-thirds that in the public schools.[2]

The presentation of these distributions does not, of course, address the question of why they take the form they do. Three factors in particular are worth noting as hypotheses amenable to empirical test. First, the geographic location of private schools may account for some

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[1] The race/ethnicity variable is constructed from items BB089 and BB090 in the codebook. Students are classified here as Hispanic if they gave as their origin or descent any one of the four classes under the heading of "Hispanic or Spanish" on BB090, regardless of how they responded to BB089. Students are classified as white if they listed themselves as "white" on BB089 and did not describe themselves as of Hispanic or Spanish origin on BB090. Similarly, students are identified as black if they listed themselves as "black" on BB089 and did not mark Hispanic or Spanish origin on BB090. Thus constructed, this variable includes over 95 percent of the students surveyed. (Nearly all the remainder consists of persons who classified themselves in a racial category other than black or white.)

[2] The sampling error on the proportion of Hispanics in other private schools is especially high because over half of the Hispanic students in this sector were in a single school.

TABLE 3.1.1

PERCENTAGE DISTRIBUTION OF WHITES, BLACKS, AND HISPANICS IN PUBLIC AND PRIVATE SCHOOLS BY GRADE: SPRING 1980

Race-Ethnicity[a]	U.S. Total		Public		Private					
					Total		Catholic		Other Private	
	Grade				Grade					
	10	12	10	12	10	12	10	12	10	12
Total enrollment:										
Number (000s)	3,727.2	3,020.7	3,378.5	2,717.0	348.7	303.7	227.2	200.1	121.5	103.6
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
White	74.9	78.8	73.7	78.0	86.2	86.2	83.9	85.4	90.4	87.9
Black	13.9	11.5	14.8	12.2	4.5	5.0	5.8	5.5	2.2	4.1
Hispanic	7.6	6.2	7.7	6.3	6.5	5.8	7.5	6.7	4.6	4.2
Other	3.6	3.5	3.7	3.6	2.9	2.9	2.9	2.5	2.9	3.9

NOTE: Details may not add to totals due to rounding.

[a] The race/ethnicity variable is constructed from items BB089 and BB090 in the codebook. Students are classified here as Hispanic if they gave as their origin or descent any one of the four classes under the heading of "Hispanic or Spanish" on BB090, regardless of how they responded to BB089. Students are classified as white it they listed themselves as "white" on BB089 and did not describe themselves as of Hispanic or Spanish origin on BB090. Similarly, blacks are identified as students listing themselves as "black" on BB089 and not marking Hispanic or Spanish origins on BB090. Thus constructed, this variable includes over 95 percent of the students surveyed. (Nearly all the remainder consists of persons who classified themselves in a racial category other than black or white.)

part of the difference between public and private schools in their proportion of black students. Private schools may tend to be located in areas that have lower proportions of blacks than the areas in which public schools are located. Second, income differences between black and white families are likely to account for another part of the difference. Third, religious differences among racial or ethnic groups may play a part. The fact that blacks are less likely to be Catholic than are Hispanics and non-Hispanic whites may account for some part of the underrepresentation of blacks in the Catholic schools compared to the public schools--though not, of course, for the underrepresentation of blacks in the other private schools. Part of this difference between Catholic and other private schools in the proportion of blacks enrolled may be due to the first two of these three factors, rather than religion--that is, a greater proportion of Catholic schools may be located in or near concentrations of black students in large cities, and tuition may be lower in Catholic schools.

The first of these hypotheses can be tested by data on the racial and ethnic composition of the local areas in which the sampled schools are found. The data that come closest to fitting this description are the 1970 U.S. Census counts aggregated according to U.S. Postal Service zipcodes.[1] Because the available information on the schools includes their zipcodes, it is possible to compare the racial and ethnic composition of a school to the racial and ethnic composition of the same age group in the area covered by that zipcode. The Census classification closest to the ages of high school sophomores and seniors is the 16- to 21-year age category.

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[1] The data employed are from the U.S. Bureau of the Census Population and Housing Fifth Count Summary Tapes, 15 and 20 percent samples. Files A and B. File A consists of summaries for 3-digit zipcode areas, and represents the entire United States population. File B consists of summaries for the 5-digit zipcode areas within Standard Metropolitan Statistical Areas (SMSAs) only. Of the 1,016 schools in the High School and Beyond sample, 548 have 5-digit zipcode information, 456 have 3-digit, and 11 could not be matched with either of the Census files because of missing information on the latter.

To make such a comparison, the numbers of blacks, Hispanics,[1] and all 16- to 21-year-olds in zipcode areas containing sampled schools of a given sector are aggregated, weighted by the numbers of sophomores and seniors in schools of that sector in the zipcode. (Methods of carrying out these calculations are described in appendix A, section A.3.).

Table 3.1.2 presents the results of these comparisons.[2] The first and fourth rows show the proportion of blacks and Hispanics aged

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[1] There is no Hispanic category in the Census race question, and Hispanics do not enter into the "other" category of that question. For present purposes, we have equated "Hispanic" with the Census category "Spanish American." The latter refers to people of "Spanish language," of Spanish surname, or of Puerto Rican birth or parentage, depending on the area of the country. In order to obtain mutually exclusive white, black, and Hispanic categories, we assume that most of those that the Census Bureau classified as "Spanish American" classified themselves as "white" on the race question. Thus, for each zipcode area, the number of non-Hispanic whites is obtained by simply subtracting the number of Spanish Americans from the number of whites. Proportions are calculated by dividing the numbers of non-Hispanic whites, Spanish Americans, and blacks by the count of all 16- to 21-year-olds in the area.

[2] The U.S. total 1970 areal proportions of 16- to 21-year-old blacks and Hispanics differ somewhat from the totals for the 1980 High School and Beyond survey. The 1970 zipcode data show 10.2 percent black and 5.0 percent Hispanic. Table 3.1.2 shows that the 1980 sample is 12.8 percent black and 7.0 percent Hispanic. Assuming no measurement error, the differences between these figures point to demographic changes over the last decade. In the absence of detailed information about where the local changes have occurred which, when aggregated, account for these overall shifts, we assume as a first approximation that the changes are distributed uniformly. The figures given in table 3.1.5

16 to 21 that live in the local areas of the school of the average student in each of the different school types; the second and fifth rows show the proportions of blacks and Hispanics respectively in the schools of each sector. Comparing the public and private sectors as wholes, we see that private schools are located in areas where the black population is very slightly lower than the average for the public schools (12.4 percent vs. 12.8 percent) and where the Hispanic population is very slightly higher (7.5 percent vs. 6.9 percent). The differences in both cases are sufficiently small that they can be regarded as approximately the same.

From these data, then, we cannot conclude that private schools underenroll blacks because the schools are not located close to where blacks live. If the geographic distribution of schools were the only constraint on black enrollment we would expect to find a black enrollment in the private sector about the same as that in the public sector. As the third row of table 3.1.2 shows, the average private school student attends a school that has about 7.7 percent fewer blacks enrolled in it than there are blacks in the area in which the school is located,

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are derived on this assumption. They are computed by simply adding the differences between the overall proportions of blacks and Hispanics in 1980 and their respective 1970 overall proportions to the proportional local compositions for the average students in each school type. The Census data show that the average public school student attends a school located in an area that is .102 black and .049 Hispanic and that the average private school student attends a school located in an area that is .098 black and .055 Hispanic. Thus, since the difference between the 1980 and 1970 overall proportions of blacks is .128 - .102 = .026, the corrected proportion of blacks in the community for the average public school student is .102 + .026 = .128, while for the average private school student it is .098 + .026 = .124. For Hispanics the overall difference is .070 - .050 = .020, and the corrected proportions are .049 + .020 = .069 for the average public school student and .055 + .020 = .075 for the average private school student.

TABLE 3.1.2

PROPORTIONAL RACIAL AND ETHNIC COMPOSITION OF THE SURVEYED HIGH SCHOOLS' LOCAL GEOGRAPHIC AREAS, WEIGHTED BY SCHOOL ENROLLMENTS, AND DIFFERENCES BETWEEN LOCAL AREAS AND SCHOOLS, BY EDUCATIONAL SECTOR: SPRING 1980

Measure	U.S. Total	Public	Private		
			Total	Catholic	Other Private
1. Proportion of local population that is black[a] ..	.128	.128	.124	.132	.110
2. Proportion of sector enrollment that is black[b] ..	.128	.137	.047	.056	.030
3. Over- or under-representation in proportion black.		.009	-.077	-.076	-.080
4. Proportion of local population that is Hispanic[a]	.070	.069	.075	.080	.067
5. Proportion of sector enrollment that is Hispanic	.070	.071	.062	.071	.044
6. Over- or under-representation in proportion Hispanic		.002	-.013	-.009	-.023
7. Sum total of school enrollments used for weighting local population proportion[c]	6,852,696	6,195,338	658,158	429,224	227,934

SOURCE: (1) High School and Beyond, 1980; (2) U.S. Bureau of the Census 1970 Census of Population and Housing Fifth Count Summary Tapes (15 and 20 percent samples). Files A and B: Population and Housing Summaries for 3- and 5-digit Zipcode Areas.

NOTE: Details may not add to totals because of rounding.

[a] Local proportions are corrected for overall changes in proportion black, white, and Hispanic from 1970 to 1980. (See footnote 2, p. 32 for further discussion.

[b] Sector proportions are obtained by combining the figures for sophomores and seniors given in table 3.1.1.

[c] These figures represent the sum of student weights without reference to any other variable; because of missing values the sums are higher than any of the total numbers given in other tables.

while the average public school student attends a school with 0.9 percent more blacks in it than in the surrounding area.

For Hispanics, we would again expect to find about the same proportions in the public and private sectors. Line 6 shows that there is only a small underrepresentation of Hispanic students, 1.3 percent, in the private sector.

Looking at Catholic and other private schools separately, there are more blacks in the areas surrounding Catholic schools (13.2 percent on average) than in the areas surrounding other private schools (11.0 percent). This partially accounts for the greater numbers of blacks in Catholic schools (5.6 percent compared to 3.0 percent). Similarly, Catholic schools are located in areas with greater concentrations of Hispanics; but line 6 shows that the Catholic schools contain approximately the same proportion of Hispanics as reside in those areas (7.1 percent to 8.0 percent), while the other private schools have 2.3 percent fewer Hispanics than are found in the local areas.

Altogether, although other private schools are located in areas with somewhat fewer black residents, which partly accounts for their lower black enrollments, the low enrollment of blacks in private schools as a whole cannot be accounted for by the geographic distribution of black residence. For Hispanics, the enrollment in Catholic schools is slightly above the national average; the lower enrollment in other private schools again cannot be accounted for by geographic distribution, though, as before, these schools are located in areas with somewhat fewer Hispanic residents.

The second hypothesis, that income differences are responsible for the lower enrollments of blacks and Hispanics in Catholic and other private schools, can be examined by looking at the proportion of Hispanics, blacks, and non-Hispanic whites in each of these sectors at each income level.[1] Figures 3.1.1 and 3.1.2 show this for Catholic and other private schools respectively.

Figure 3.1.1 shows that income differences do account for a large part of the lower enrollments of blacks in Catholic schools. At the lower- and middle-income levels, the difference in enrollments of blacks and whites in Catholic schools is 2 to 3 percent; it is 1 percent at the highest level. This compares with a difference of 4.2 percent when income is not taken into account. (Percentaging table 3.1.1 across the rows instead of down the columns, we find that 7.0 percent of all non-Hispanic whites are in Catholic schools, while 2.8 percent of blacks are in Catholic schools.) These data indicate that the public-Catholic difference in proportions of blacks would be reduced to less than half its size if blacks had the same income distribution as whites.

There is a higher percentage of Hispanics than of non-Hispanic whites in Catholic schools at nearly every income level, increasingly so at higher income levels. Thus, if the incomes of Hispanics and non-Hispanic whites were the same, Hispanics would be somewhat overrepresented in Catholic schools.

Figure 3.1.2 shows that the increase in percent enrolled with increase in income is much less for all three groups in other private

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[1] Information on the family income level of students was obtained from variable BB101, which asked which one of seven different annual income ranges the respondent's family income was in: (1) less than \$7,000, (2) \$7,000 to \$11,999, (3) \$12,000 to \$15,999, (4) \$16,000 to \$19,999, (5) \$20,000 to \$24,999, (6) \$25,000 to \$37,999, and (7) \$38,000 or more. The seven levels on figures 3.1.1., 3.1.2, 3.1.3, and 3.1.4 correspond to these ranges. The numbers and percentages on which figures 3.1.1 and 3.1.2 are based are given in table 3.5.1.

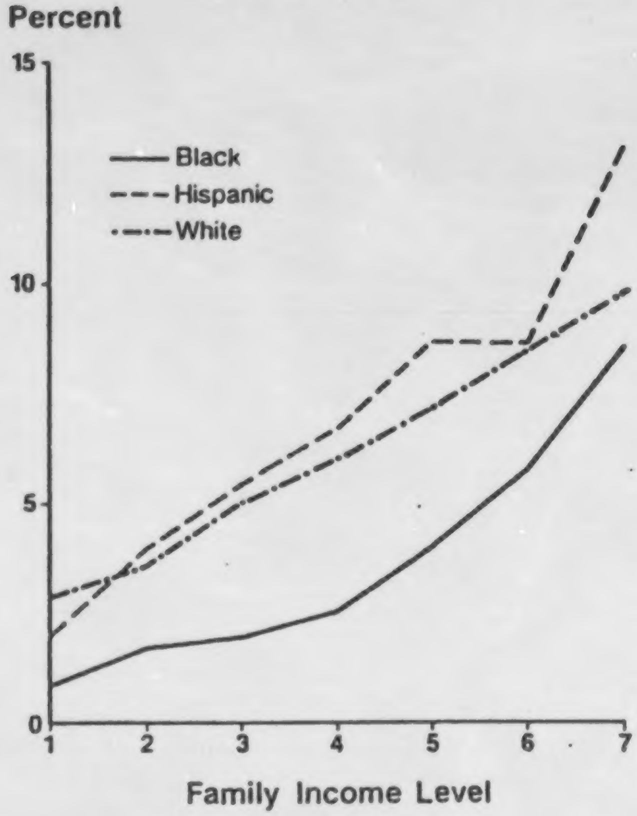

Fig. 3.1.1. Percent of students from differing income levels in Catholic schools, by race and ethnicity: Spring 1980.

schools than in Catholic schools. The gradient is small and about the same for Hispanics and non-Hispanic whites, except for those at the highest income level, and it is nearly zero for blacks, again excepting the highest income level. Over most of the income range, the difference between the percentage of all non-Hispanic whites enrolled in these schools and the percentage of all Hispanics enrolled is about 1 percent. The difference between whites and blacks is about 2 percent at lower income levels, 3 percent or more at higher levels.

These differences can be compared to the overall differences when income is not controlled. Percentaging across the rows of table 3.1.1,

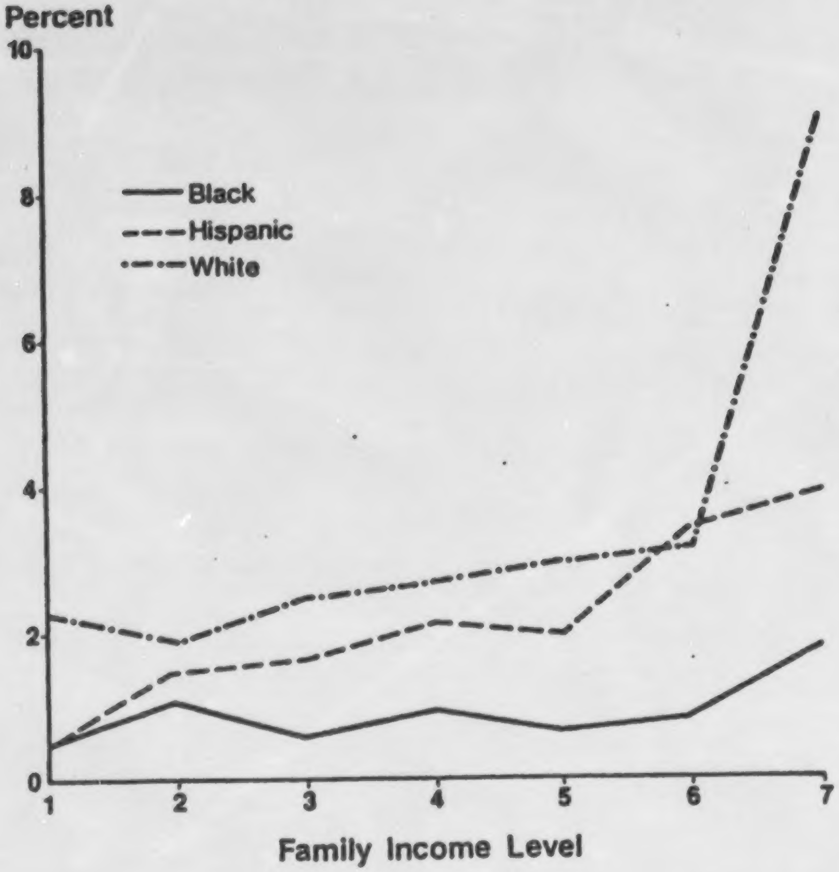

Fig. 3.1.2. Percent of students from differing income levels in other private schools, by race and ethnicity: Spring 1980.

we find that non-Hispanic whites, Hispanics, and non-Hispanic blacks constitute 3.9 percent, 2.1 percent, and 0.8 percent, respectively, of the enrollment in other private schools. The differences with income uncontrolled are 1.8 percent for Hispanics and 3.1 percent for blacks; controlling for income reduces the difference between non-Hispanic whites and Hispanics from 1.8 percent to about 1 percent, but reduces the white-black difference by a lesser amount. Thus income accounts for some part of the differential enrollment of non-Hispanic whites and Hispanics in other private schools, for a smaller part of the differential enrollment of whites and blacks.

These comparisons, of course, do not take religion into account. The fact that about 9 percent of blacks, about 35 percent of whites, and over 65 percent of Hispanics are Catholic[1] means that the enrollment rates of Catholics in each of these three groups in Catholic schools must be quite different from that shown in the graphs. In fact, as table 3.1.3 shows, there is a reversal among the groups in the enrollment rates of Catholics and non-Catholics in Catholic schools. Among Catholics, Hispanics are least likely to be enrolled in Catholic schools, and blacks and whites are equally likely to be enrolled. Among non-Catholics, the rates are of course low for all groups, but here blacks are most likely to be enrolled in Catholic schools, and Hispanics and whites are about equally likely to be enrolled.

TABLE 3.1.3

NUMBER AND PERCENT OF CATHOLIC AND NON-CATHOLIC WHITES, BLACKS, AND HISPANICS THAT ARE IN CATHOLIC SCHOOLS: SPRING 1980

Religious Background	Whites		Blacks		Hispanics	
	Number (000s)	Percent	Number (000s)	Percent	Number (000s)	Percent
Catholic	326.0	18.8	12.0	18.7	28.1	10.3
Non-Catholic	35.4	1.0	12.1	1.5	2.2	1.1

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[1] These figures are obtained from the crosstabulation of the constructed race-ethnicity variable with BB091, which asked students to identify their "religious background." The numbers and percentages of students with different religious backgrounds within each type of school are presented in table 3.3.1.

Again, because there are differences in income distribution among blacks, whites, and Hispanics, Catholics from these three groups who have the same income levels should be enrolled at rates somewhat different from those shown in either figure 3.1.1 or table 3.1.3. Figures 3.1.3 and 3.1.4 show, for blacks, whites, and Hispanics at each income level, the enrollment rates for Catholics and non-Catholics separately.

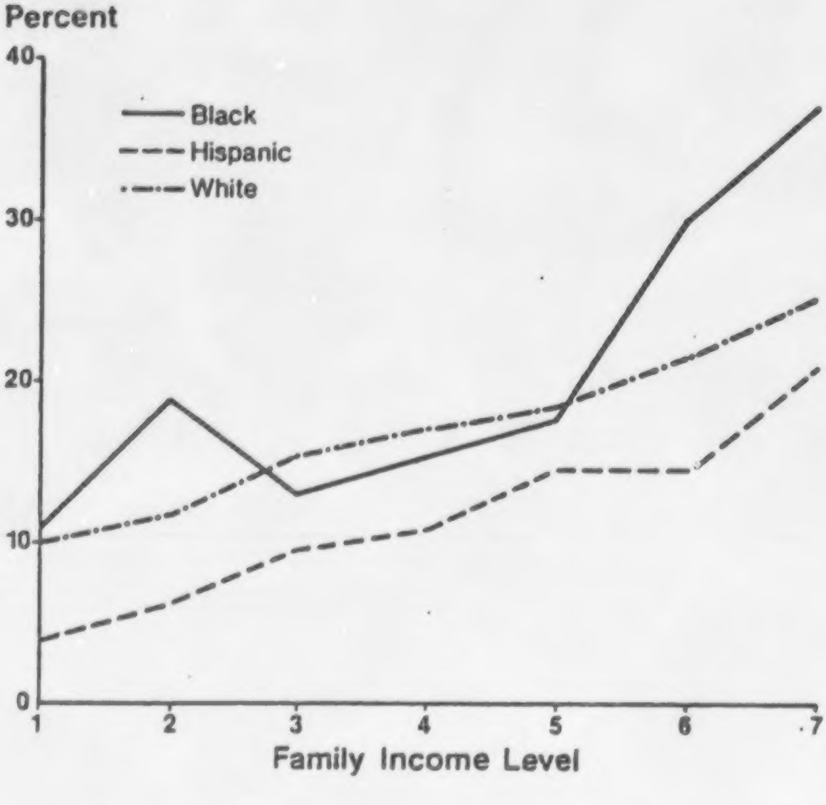

Fig. 3.1.3. Percent of Catholic students from differing income levels in Catholic schools, by race and ethnicity: Spring 1980.

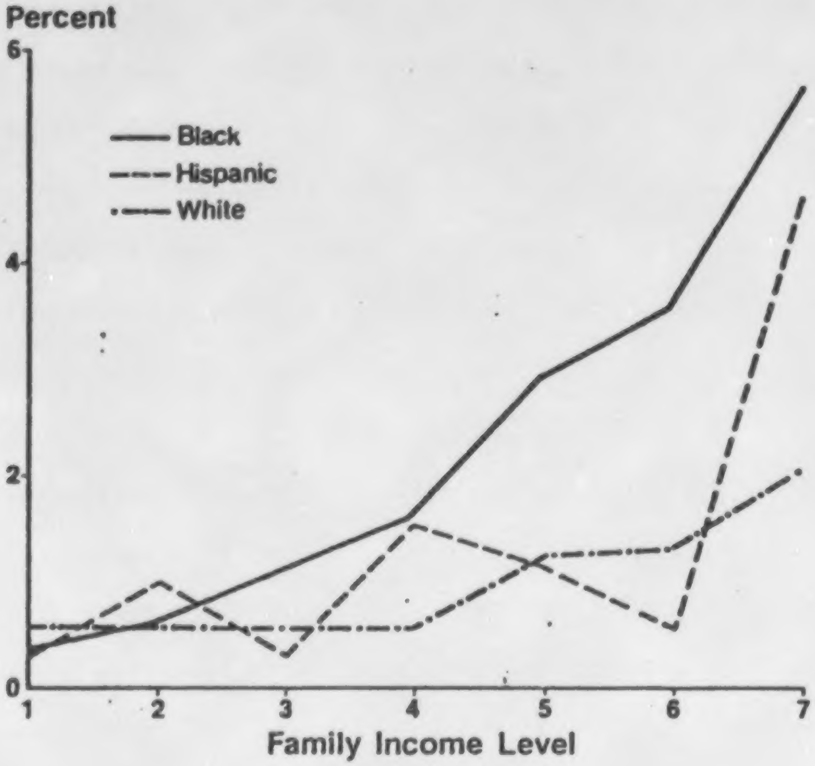

Fig. 3.1.4. Percent of non-Catholic students from differing income levels in Catholic schools, by race and ethnicity: Spring 1980.

The results are striking, although the small numbers of cases among black Catholics at each income level make the location of particular points erratic. Generally, black Catholics at both low and high income levels (and probably at middle income levels as well, if sampling error were removed) have higher enrollment rates in Catholic schools than white Catholics, and both groups have higher rates than Hispanics. Similarly, among non-Catholics, the black enrollment rate in Catholic schools is higher than the white rate, and again both are higher than the Hispanic rate.

Among both Catholics and non-Catholics the Catholic school enrollment rate rises considerably more sharply at high income rates for blacks than for whites, a result that is strengthened by consistency across the two religious groups. Although the 38 percent rate among black Catholics at the highest income level is subject to sampling error, the evidence is strong that high-income blacks have considerably higher enrollment rates in Catholic schools than do whites of the same religious group.

Thus, controlling for the effects of both income and religious background, it is clear that blacks are enrolled in Catholic schools in higher proportions than are whites and Hispanics. The significance of this fact is heightened when one considers the relative absence of tradition for this pattern, except in the South. The data presented here strongly suggest that such a tradition is developing rapidly; blacks with the means to do so enroll in Catholic schools at rates that are generally higher than rates for other groups, and this is true regardless of religious background.

These comparisons in the Catholic and other private schools indicate not only the degree to which income and religious differences can account for enrollment differences, but also what might be the consequences of decreasing the economic barriers to private schools for lower income families, or of increasing those barriers. A more explicit examination of this policy question is carried out later in this chapter.

The examination to this point has been confined to the question of just how the proportions of minority students in the private sector compare to those in the public sector. An equally important question however, is, just how the sectors compare in the segregation among different schools within each sector. On the one hand, even if there were a high proportion of minorities in private schools, a high degree of internal segregation among these schools would have the same segregating consequences as if the proportion of minorities were low. On the other hand, even if the public schools contain a high proportion of minorities, a high degree of internal segregation within the public schools would have the same segregating consequences as if the whites were segregated in private schools.

Measures of intergroup contact and of intergroup segregation have been constructed to examine internal segregation. (See the Appendix for methods of calculation.) The measure of contact is a measure of the average proportion of a student's schoolmates who are from another group. It is affected both by the proportion of students of the other group in that sector and by their distribution among the schools of that sector. The measure of segregation was constructed by standardizing the measure of contact by the proportion of students of the other group in the sector. Thus it reflects only the distribution of students among the schools in the sector, given their overall numbers.[1]

Table 3.1.4 presents the indices of intergroup contact and segregation as applied to racial and ethnic groups. The measure of interracial

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[1] These measures are taken from Coleman, Kelly, and Moore (1975, p. 22), where they were developed and used to measure interracial contact and interracial segregation. Since their development they have been used by a number of investigators, and they now constitute one of the standard ways of measuring segregation in schools. See Zoloth 1973, Cortese et al. 1976, Becker et al. 1978, Thomas et al. 1978.

TABLE 3.1.4

INDICES OF INTERRACIAL AND INTERETHNIC CONTACT AND SEGREGATION IN PUBLIC AND PRIVATE SCHOOLS: SPRING 1980

Measure	U.S. Total	Public	Private		
			Total	Catholic	Other Private
Overall proportions					
Non-Hispanic whites...	.767	.756	.862	.846	.893
Non-Hispanic blacks...	.128	.137	.047	.056	.030
Hispanics............	.070	.071	.062	.071	.044
Index of Contact, s_{ij}					
For Whites and Blacks					
Proportion of the average black's schoolmates who who are white, s_{bw}..	.39	.38	.61	.58	.71
Proportion of the agerage white's schoolmates who are black, s_{wb}	.07	.07	.03	.04	.02
For Whites and Hispanics					
Proportion of the average Hispanic's schoolmates who are white, s_{hw}	.53	.53	.57	.63	.40
Proportion of the average white's schoolmates who are Hispanic, s_{wh} ...	.05	.05	.04	.05	.02
Index of segregation, r_{ij} (ranges from 0 = no segregation to 1 = complete segregation)[a]					
Segregation of blacks and whites	.49	.49	.29	.31	.21
Segregation of Hispanics and whites...	.30	.30	.34	.25	.55

[a] For the method of calculating the values of s_{ij} and r_{ij}, see appendix A. Although the value of r_{ij} is theorectically identical to the value of r_{ji}, slight discrepancies will occur because of rounding.

contact of blacks with whites is a measure of the proportion of the average black students' schoolmates who are white; the measure works in reverse for the contact of whites with blacks. The values of .38 and .07 in column 1 of table 3.1.4, for example, mean that about 38 percent of the average black child's classmates in public schools are white, and that about 7 percent of the average white student's classmates are black.

The results tell something about the racial distribution within the school sectors. Looking first at the measures of contact, we see that the proportions are generally consistent with what we would expect, given the overall proportions at the top of the table. That is, since the public sector has about 11 percent fewer whites than the private sector, we would expect that the proportion of the average black's and the average Hispanic's schoolmates who are white would be lower in the public than in the private sector. Comparison of the second and third columns of table 3.1.2 makes it clear that this is in fact the case; but, for the average black student, the difference is much greater than 11 percent. About 60 percent of the classmates of the average black student in the private sector are white, as compared with about 38 percent for the average black student in the public schools, a difference of 22 percent. For Hispanics, the figures are much closer: the average Hispanic student has 53 percent white classmates in the public sector and 57 percent in the private sector. The pattern generally holds when the Catholic and other private schools are considered separately, the only exception being the low proporiton of white schoolmates for the average Hispanic in the other private schools (.40). This exception, however, is more likely the result of sampling error than of a general pattern: the Hispanic enrollment in just one of the 27 other private schools in the sample accounts for 64 percent of the total Hispanic enrollment in the other private sector.

Following the same logic, we would expect that the proportions of the average white student's classmates who are black and Hispanic would be higher in the public schools (except in the public-Catholic comparison for Hispanics, where the proportions should be about equal). The measures of contact are consistent with expectation on this point as well.

The measures of intergroup segregation within each sector are given in the bottom two rows of table 3.1.4. Comparing columns 1 and 2, we see that blacks and whites are substantially less segregated in the private sector than in the public sector: the black-white segregation index takes on a value of .49 in the public sector versus only .29 in the private. For Hispanics, the sectors are much closer, with the private sector index (.34) indicating slightly greater segregation than is found in the public sector (.30).

Examining black-white segregation within the two private sectors separately reveals that segregation within each is much lower than that in the public sector and that segregation in the other private schools is lower than that in the Catholic schools. Measures of segregation between non-Hispanic whites and Hispanics shows that segregation in the Catholic schools (.25) is lower than that in the public schools, while that in the other private schools (.55) is substantially higher.[1]

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[1] This high measure of segregation is the result of the sampling problem mentioned above, that is, the effect of a single school. The exceptionally high Hispanic enrollment in this school also accounts for why the private sector as a whole has a degree of Hispanic-nonHispanic segregation (.34) slightly higher than that in the public sector (.30), as noted in the preceding paragraph.

The information given by the measures of within-sector intergroup contact and segregation is displayed in another form in tables 3.1.5 and 3.1.6, which show, respectively, the percentages of blacks and Hispanics attending schools of four different racial compositions. The first table indicates that over half of the black students in the private sector attend schools that are less than 20 percent black, but only about a fifth of the public school blacks attend such schools. About 45 percent of the black students in the public sector attend predominantly black schools, compared to 17 percent in the private sector. Table 3.1.6 shows that, although over half of all Hispanics in both sectors are in schools that are less than 20 percent Hispanic, a somewhat higher percentage of Hispanics in the private sector are in predominantly Hispanic schools. However, this pattern is probably due to the sampling problem for Hispanics in the other private schools referred to earlier.

TABLE 3.1.5

PERCENTAGE DISTRIBUTION FOR BLACK STUDENTS IN PUBLIC AND PRIVATE SCHOOLS BY LEVEL OF BLACK ENROLLMENT: SPRING 1980

Percent Black Enrolled	U.S. Total	Public	Private		
			Total	Catholic	Other Private
Totals:					
Number	863,629	832,767	30,862	24,045	6,817
Percent	100.0	100.0	100.0	100.0	100.0
0 to 19 percent	20.6	19.4	53.3	54.6	48.8
20 to 49 percent	35.2	35.4	0.0	24.0	51.2
50 to 79 percent	21.3	21.8	6.6	8.5	0
80 to 100 percent	22.9	23.4	10.0	12 9	0

NOTE: Details may not add to totals because of rounding.

TABLE 3.1.6

PERCENTAGE DISTRIBUTION FOR HISPANIC STUDENTS IN PUBLIC AND PRIVATE SCHOOLS BY LEVEL OF HISPANIC ENROLLMENT: SPRING 1980

Percent Hispanic Enrolled	U.S. Total	Public	Private		
			Total	Catholic	Other Private
Totals:					
Number	470,856	430,660	40,196	30,344	9,852
Percent	100.0	100.0	100.0	100.0	100.0
0 to 19 percent	59.1	59.7	52.7	58.8	34.1
20 to 49 percent	18.2	18.4	16.2	21.0	1.6
50 to 79 percent	17.5	16.7	26.6	14.4	64.3
80 to 100 percent	5.2	5.3	4.4	5.8	0

NOTE: Details may not add to totals because of rounding.

Summarizing our examination of private schools and racial and ethnic segregation, we can say the following. For Hispanics, there is very little difference between the public and private sectors, either with respect to the proportions of Hispanics in each sector, or with respect to the internal distribution of Hispanics within the schools of each sector. The distribution of Hispanics between public and private schools is about the same as that of non-Hispanic whites. Within each sector the degree of segregation between the two groups is not especially high, and it is about the same in the public and private sectors. If the income distribution among Hispanics were the same as that among non-Hispanic whites, there would be somewhat higher proportions of Hispanics in the Catholic schools, and thus in the private sector as a whole, than in the public sector.

The results for black-white segregation are considerably more complex. There is a substantially smaller proportion of blacks in the private sector than in the public sector--less than half as high a proportion in the Catholic schools, and less than a quarter as high in the other private schools. The geographic location of private schools accounts for only a small part of this difference between the public and private sectors, though it accounts for a somewhat larger part of the difference between Catholic and other private schools, which are less often found in areas with high numbers of blacks. The income difference between blacks and whites does account for a substantial part of the public-Catholic difference in proportion of blacks enrolled, though little of the public-other private difference.

The effect of religious background on school selection was also examined for the Catholic sector. The percentage of blacks who are Catholic is much smaller than the percentage of whites and Hispanics who are Catholic, and, when this factor is taken into account, the differences between blacks and whites in chances of attending Catholic high schools disappear. Finally, when the effects of income and religious background are considered simultaneously, blacks are generally found to be enrolled at higher rates than whites (and Hispanics) who are similar in income and religious background.

Despite the fact that controlling for the effects of income and religion introduces important qualifications to any discussion about the causes of racial segregation in public and private education, it remains the case that the proportion of black students in private schools is substantially lower than that in public schools. But information on the internal segregation between blacks and whites tells a different story: the public sector has a substantially higher degree of segregation than the private sector (or either of its two components separately). Thus, the integrating impact of the lesser degree of segregation within the private sector counteracts the segregating impact of the lower proportion of blacks in that sector.

What is the end result of these conflicting tendencies, the overall impact of private schooling on black-white segregation? An answer can be obtained by comparing the overall black-white segregation among all high schools, public and private considered together, as it currently stands, to the segregation we would expect if the students currently in private schools were absorbed into the public system. We assume that they would be distributed among schools within the public sector in exactly the way whites and blacks are currently distributed in the public sector.[1] Any differences found in such a comparison would of course be quite small, since only 10 percent of the student population would change schools; but the direction is important.

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[1] This assumption may be questioned on two grounds: these students may live in areas that are closer to or further from blacks than is true for whites currently in public schools; and their family incomes may allow them more resources to move to higher income areas with smaller proportions of blacks. Table 3.1.2 shows that private schools are located in areas with slightly smaller proportions of blacks than is true for the average public school. And, in the next section, table 3.2.1 shows that the incomes of parents of private school students are somewhat higher than those of parents of public school students. Thus, on both these grounds, both black and white students currently in private schools would tend to enter public schools that were more white than the public schools attended by black and white students in the public sector. Since the proportion of white students in private schools is higher than in the public sector, we would expect that absorption of private school students into public schools would result in a slightly more segregated public sector than found at present. Thus the comparison in the text may slightly understate the degree of segregation to be expected if private schools were absent.

If we assumed that no private schools existed, and that blacks and whites currently in private schools were absorbed into the public schools with exactly the same distribution among schools as is currently found in the public schools, the degree of segregation for the total U.S. student population would be that given by the segregation index for the public sector, .49. Comparing this to the current segregation index for all U.S. students, also .49, suggests that the two tendencies exactly cancel each other out. But, carried to three decimals, these indices are .493 and .489, which means that the private schools have a small effect in the direction of less segregation.

3.2 The Economic Backgrounds of Public and Private School Students

Although much attention has been directed to the possible divisiveness of private schools along racial lines in recent years, the first such concern was with economic divisiveness. This is the most natural form that public-private stratification would take, since private schools are costly to the user, and public schools are free to the user. And it is the stratification that naturally comes to mind when the elite private schools are discussed.

We know, however, that a large number of private schools do not fit this image. The Catholic schools were not designed for an upper class elite, and many of the other private schools are also based on religious rather than social class homogeneity. Consequently, despite the fact that sending a child to a private school costs parents money while sending a child to a public school does not, the diverse origins and affiliations of private schools suggest that private schools as a whole may serve students with economic backgrounds not greatly different from those of students served by public schools.

But even if this is true, it addresses only the question of economic segregation between the public and private sectors, not economic segregation within the private sector. And, if there are elite schools and nonelite schools in the private sector, there must be a considerable degree of economic segregation among schools within that sector.

Yet the questions of economic segregation between the private and public school sectors and within the private sector do not exist in a vacuum. They exist, rather, within the framework of some degree of economic stratification among schools in the public sector itself. The geographic mobility by residence that facilitates a degree of racial homogeneity in public schools, as shown in the preceding section, also facilitates a degree of economic homogeneity. Thus the tendencies of private schools to lead to economic stratification between the private and public sectors or within the private sector must be seen in a context of economic stratification within the public school sector.

The task, then, is first to examine the degree of economic stratification between the private and public sectors of education, then to examine the degree of stratification within the private sector as compared to that within the public sector, and, finally, as in the case of race and ethnicity, to ask what the overall contribution of the private sector is to economic segregation.

Looking first at the distributions of students between sectors, table 3.2.1 and figure 3.2.1 show that the directions of the economic differences among students in the public and private sectors are consistent

TABLE 3.2.1

PERCENTAGE DISTRIBUTION OF STUDENTS FROM VARIOUS ECONOMIC BACKGROUNDS AND MEDIAN FAMILY INCOMES IN PUBLIC AND PRIVATE SCHOOLS: SPRING 1980

Amount of Money Family Makes in a Year[a]	U.S. Total	Public	Private		
			Total	Catholic	Other Private
Totals:					
Number	5,798,420	5,246,991	551,429	361,250	190,179
Percent	100.0	100.0	100.0	100.0	100.0
$6,999 or less	7.2	7.7	2.6	2.4	2.9
$7,000 to $11,999	11.9	12.5	6.3	6.3	6.3
$12,000 to $15,999	16.7	17.2	12.4	12.8	11.5
$16,000 to $19,999	18.7	19.0	16.6	17.3	15.2
$20,000 to $24,999	18.1	18.0	19.2	20.7	18.1
$25,000 to $37,999	15.0	14.6	18.5	20.4	15.0
$38,000 or more	12.4	11.1	24.5	20.1	32.8
Median Income[b]	$19,000	$18,700	$23,200	$22,700	$24,300

NOTE: Details may not add to totals because of rounding.

[a] Taken from responses to BB101, "Which (of seven groups) comes closest to the amount of money your family makes in a year?".

[b] Median income is obtained by linear interpolation within the income category in which the 50th percentile falls.

with what past research and popular conception lead us to expect. The private sector as a whole has an income distribution somewhat higher than that of the public sector, with a median income of $23,200, compared to $18,700 for the public sector. Within the private sector, the differences are also in the expected direction: $22,700 for the students in Catholic

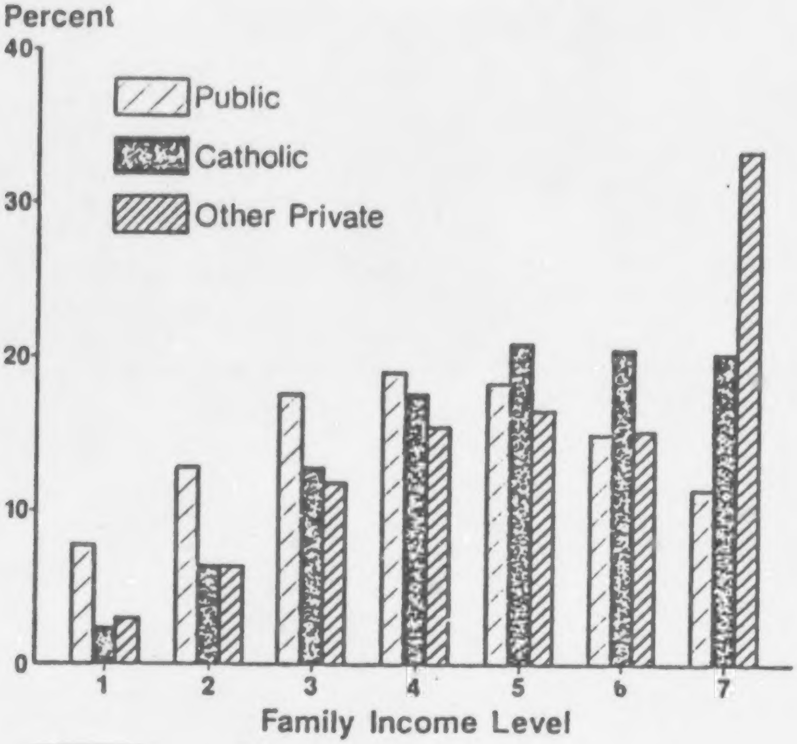

Fig. 3.2.1. Percent of students in public, Catholic, and other private schools, by family income level: Spring 1980.

schools, compared to $24,300 for the students in other private schools. At the same time, the income distribution in each sector is quite broad. Of particular interest is the fact that the private sector does not contain students from homogeneous economic backgrounds; nor does either of its two major subsectors. The greatest differences between the public and private sectors occur, as one might expect, at the extremes: at the lower extreme, both of the private subsectors have proportions of students from families with incomes of less than $12,000 that are less than half as high as those in the public sector; at the upper extreme, the Catholic schools have almost twice as high a proportion and the other private schools have almost three times as high a proportion of students from families with incomes of $38,000 or more.

These differences suggest that there are a number of possible factors at work functioning to reduce the accessibility of lower income students to private education. Foremost among these, of course, is simply the cost of private education. But it may also be that private schools tend to be located at some distance from residential concentrations of lower income families, thus further reducing their accessibility. While an analysis comparable to that carried out on the local distributions of racial and ethnic groups cannot be included in this report, further research in this direction would be useful.

The second question relevant to an examination of the contribution of private schools to economic stratification concerns the distributions of students from different income levels within the sectors and school types. While we have seen that poorer students are underrepresented and wealthier students overrepresented in the private sector taken as a whole, it is quite another question to ask whether students from different economic backgrounds who are enrolled in each sector attend the same schools or different ones. To address this question, we can use the measures of contact and segregation that were used for race and ethnicity. The variable identifying student economic backgrounds is BB100, which asked the respondent's family income in three categories: below $12,000, between $12,000 and $20,000, and above $20,000. The segregation examined is that between those below $12,000, about 18 percent of the total, and those above $20,000, about 43 percent of the total.

Table 3.2.2 gives the results of the computations. As the overall proportions (given at the top of the table) would lead us to expect,

TABLE 3.2.2

INDICES OF CONTACT AND SEGREGATION OF PUPILS FROM HIGHER AND LOWER INCOME FAMILIES IN PUBLIC AND PRIVATE SCHOOLS: SPRING 1980

Measure	U.S. Total	Public	Private		
			Total	Catholic	Other Private
Overall Proportions:					
High Income ("over \$20,000" on BB100)[a]	.429	.411	.595	.577	.629
Low Income ("under \$12,000" on BB100)[a]	.178	.188	.084	.082	.086
Index of Contact, s_{ij}[b]					
Proportion of the average low income student's schoolmates who are from high income families	.331	.323	.499	.476	.542
Proportion of the average high income student's schoolmates who are from low income families	.137	.148	.070	.068	.075
Index of segregation, r_{ij}[b]					
Segregation of high income students from low income students	.23	.21	.16	.18	.14

[a] Taken from responses to BB100, "Which (of three groups) comes closest to the amount of money your family makes in a year?".

[b] For the method calculating the values of s_{ij} and r_{ij}, see the Appendix. Although the value of r_{ij} is theoretically identical to the value of r_{ji}, slight discrepancies will occur due to rounding.

the measures of contact, s_{ij}, show that the average low-income student in the public sector has a lower proportion of schoolmates from high-income families than such a student in the private sector (.323 versus .499, columns 2 and 3). The disparity between the proportions of low-income schoolmates for the average high-income student in the two sectors is even more pronounced--the high-income student in the private sector has less than half as high a proportion of lower income schoolmates as the high-income student in the public sector (.070 versus .148).

These values of the measure of contact reflect both the proportions of high- and low-income students in the sector as a whole and the distribution of these students within each sector. The values on the index of segregation given at the bottom of the table, which standardize on the proportion of each group in the sector, show the economic segregation within each sector of students from the two different income backgrounds. As in the case of race and ethnicity, the degree of economic segregation is lower in the private sector as a whole, and in the Catholic and other private sectors separately, than in the public sector. But the differences between the public and private sectors in internal segregation are much less here than in the case of black-white segregation.

With economic segregation, then, there is the same counterbalancing tendency as found in the case of racial segregation: higher economic backgrounds are overrepresented in the private sector, but the private sector is less internally segregated than is the public. The overall levels of economic segregation are considerably lower than those of black-white segregation (e.g., in the public sector, .21 versus .49), but a similar counterbalancing pattern holds.

We can ask, then, as in the case of black-white segregation, what the overall impact is of these two counterbalancing tendencies. Again, this is done by comparing the economic segregation among schools for all sectors together (the U.S. total in the table) to that for the public sector. This comparison shows the economic segregation among

U.S. schools as a whole that would result from private school students being absorbed into the public schools and distributed among public schools as current public school students are. Here the comparison of .23 to .21 shows that the overall impact of the private sector is to increase slightly the degree of economic segregation, not, as in the case of black-white segregation, to effect an exact counterbalancing.

The similarity of pattern in the cases of racial and economic segregation raises a question about whether there might be a common cause. That is, in both areas, the segregation within the private sector is less than that within the public sector, while in both areas the private sector has higher proportions of the population group with greater resources (in the black-white comparison, whites; in the economic comparison, higher-income groups).

Two related explanations seem plausible, both based on the assumption that parents will attempt to have their children in schools with others who are likely to do well in school, and that those parents with greater resources (higher incomes, or whites) will be better able to do this. The explanations are:

1. The proportion of lowest income students and the proportion of black students in the private sector are lower in the private schools than in the public schools. Thus the parent who has chosen the private sector will be less concerned that the norms of the school and the standards of instruction will be brought down by students that the parent a priori assumes are more likely to have such an impact, that is, students from low-income families and black students (who of course are often from low-income backgrounds). Public school parents will have the same general concerns, but, with a higher proportion of low-income or black (or both) students in the sector as a whole, will manifest those concerns by moving their children to schools where the proportions are lower, if they have the resources to do so. It is white, higher income families who more often have such resources, and the end result is a higher degree of internal segregation.

2. Private schools, as will be evident in the subsequent chapters, have greater control of their students and exercise stronger discipline than do public schools. This is, of course, based

to a considerable degree on the fact that private schools can expel students or use other disciplinary measures with much less legal constraint, and much more parental acquiescence, than the public schools. This stronger discipline means that a parent concerned about the norms and standards in the school will be more assured in the private sector that those norms and standards are maintained by the staff, rather than being shaped by the type of student body. Consequently, the private school parent will be less concerned about the student body composition, since that student body is "kept in hand" by the staff. Public school parents with the same general concerns, but seeing the norms and standards more shaped by the composition of the student body, will exert greater effort to have their children in schools where they see that composition favorable to school achievement. Parents with greater resources will be more successful in this, thus leading to greater racial and economic segregation in the public than in the private sector.

3.3 The Religious Backgrounds of Public and Private School Students

Historically, issues of religious divisiveness have been central to debates concerning private education. Although economic differences are an important factor in private school enrollment, religious concerns have been, and continue to be, probably the strongest motivating force in parents' decisions to send their children to private schools. This motivation can be seen better, perhaps, in other countries. For a number of countries have state-supported schools operated by religious groups, along with secular schools; and, in some countries, the major sectors of publicly supported education are those operated by different religious denominations.

As pointed out earlier (chapter 1), about 80 percent of private sector students are enrolled in schools affiliated with some specific religious denomination, and it is probably safe to assume that an interest in affirming basic religious values within the context of formal education is a major determinant of private school enrollment. This choice usually presents no problem. But when the question of public aid to private education is raised many see a conflict with the commitment of the United States to the separation of church and state. In addition to the constitutional question, there is a social issue in the potential divisiveness of the orientations of religiously affiliated schools. Specifically, it is sometimes argued that the existence of religiously affiliated schools isolates youth of different faiths and generates intolerance of other religious perspectives. Traditionally, this argument has been applied primarily to Catholic schools, and, because only the numbers of Catholic schools in the sample are sufficient to allow analysis in this area, the analyses conducted here will focus on Catholic schools. In particular, we will examine the extent to which Catholic and non-Catholic students are segregated from each other as a result of private education.

Table 3.3.1 gives a picture of the proportions of students from each of the major religious groups in each school sector. With the exception of Episcopalians, Catholics, and Jews, the public and the non-Catholic private sectors tend to be quite similar. While Catholics make up the overwhelming majority of the student enrollment in the Catholic school sector, the Catholic contingent in the public schools (30.7 percent) means that, given the numerical bases, most Catholics are in the public schools. Also, perhaps contrary to general assumptions, the relative percentages of Baptists and Lutherans are smaller in the non-Catholic private sector than they are in the public sector, despite the traditionally strong Lutheran schools and the increasing numbers of Baptist schools.

Table 3.3.1 shows that there are sharply different proportions of Catholic students in the public, Catholic, and other private sectors. The next question concerns the distribution of Catholic students within

TABLE 3.3.1

PERCENTAGE DISTRIBUTION OF STUDENTS FROM VARIOUS RELIGIOUS BACKGROUNDS IN PUBLIC AND PRIVATE SCHOOLS: SPRING 1980

Religious Background	U.S. Total	Public	Private		
			Total	Catholic	Other Private
Totals:					
Number[a]........	6,280,304	5,652,648	627,656	413,264	214,392
Percent	100.0	100.0	100.0	100.0	100.0
Baptist	21.0	22.5	7.4	1.9	18.0
Methodist	8.6	9.3	3.0	1.0	6.8
Lutheran	6.2	6.7	2.0	1.0	4.0
Presbyterian	4.5	4.7	2.8	1.1	6.1
Episcopalian	2.1	2.0	3.1	0.7	7.8
Other Protestant.	4.1	4.2	3.1	0.7	7.7
Catholic	34.2	30.7	65.8	90.9	17.4
Other Christans .	6.5	6.8	3.6	0.9	8.9
Jewish	2.1	1.9	4.2	0.3	11.9
Other religion ..	4.3	4.5	1.8	0.4	4.5
None	6.4	6.8	3.1	1.2	6.9

NOTE: Details may not add to totals because of rounding.

[a] The total number reflects the usable responses to BB091 ("What is your religious background?") and therefore differs slightly from other totals given in this section.

each of the sectors (and, if the sample of other private schools were much larger, would also include the distribution of students of other religious backgrounds among the schools in that sector). Information on this distribution is given in table 3.3.2. This table shows that the average Catholic student in the Catholic school sector indeed has a very low proportion of schoolmates who are non-Catholic (.081), and that the average non-Catholic student in the public and other private sectors has a much smaller proportion of Catholic schoolmates (.240 and .125 compared to .805). Turning to the index of segregation, which standardizes on the differing proportions in each sector, the results are given in the last row of the table. It is not the case that non-Catholics and Catholics are more segregated within the Catholic sector than are non-Catholics and Catholics in public and other private schools. The opposite is true: non-Catholic and Catholic students are the least segregated from one another in the Catholic schools (.115). Somewhat surprisingly, Catholic students are the most segregated in the non-Catholic private schools, though in no case is the extent of segregation very high.

The overall religious segregation in U.S. schools as a whole is higher than that in any single sector, because of the concentration of Catholics in Catholic schools. However, it is lower than black-white segregation and about the same as Hispanic-Anglo segregation (.30 compared to .49 or .30).

We would expect the Catholic/non-Catholic segregation within the private sector as a whole to be higher than that in the public sector or either of the private sectors separately, and it is (63). This means that, in contrast to the case of black-white segregation, policies that

TABLE 3.3.2

INDICES OF CATHOLIC/OTHER RELIGIOUS BACKGROUND CONTACT AND SEGREGATION IN PUBLIC AND PRIVATE SCHOOLS: SPRING 1980

Measure	U.S. Total	Public	Private		
			Total	Catholic	Other Private
Overall Proportions:					
Catholics	.342	.307	.658	.909	.174
Other religious background	.658	.693	.342	.091	.826
Index of contact, s_{ij}, for Catholics and "Others":					
Proportion of the average Catholic's schoolmates who are "Other"	.462	.541	.127	.081	.590
Proportion of the average "Other's" schoolmates who are Catholic	.241	.240	.244	.805	.125
Index of segregation, r_{ij} (ranges from 0 = no segregation to 1 = complete segregation)[a]	.30	.22	.63	.11	.28

[a] For the method of calculating the values of s_{ij} and r_{ij}, see appendix A. Although the value of r_{ij} is theoretically identical to the value of r_{ji}, slight discrepancies will occur because of rounding.

would draw children from the public sector to the private sector would move them from a sector of lower religious segregation to a sector of higher religious segregation.

We can also ask, as we did for racial, ethnic, and economic segregation, just what the overall contribution of the private schools is to religious segregation among schools in the United States. The current degree of segregation is, as shown in the table, .30. If students from the private sector were absorbed into the public sector and distributed themselves exactly as those currently in the public sector are distributed, the degree of segregation would be .22. Thus the private schools do contribute to the segregation of Catholic and non-Catholic students, raising the segregation index from .22 to .30. At the same time, this degree of segregation is, as noted earlier, not high.

3.4 Handicapped Students in Public and Private Schools

The final category of students that this chapter examines is the handicapped. Information about handicapped students in the schools is obtained from students' self-reports and from the school questionnaire. Neither of these is a wholly satisfactory information source, but use of both will give some information about handicapped students. Table 3.4.1, based on student reports, indicates that the public schools enroll a somewhat higher proportion of handicapped students than the private schools. However, the differences are rather small for those reporting "some" kind (i.e., including less severe kinds) of handicap. The third row in the table, which reflects more serious handicaps, shows a somewhat greater difference, with about three-fifths as high a proportion of the Catholic and other private school students as of the public school students reporting a limiting handicap.

If principals' responses are used to estimate the percentages of handicapped children in these schools the differences are more

TABLE 3.4.1

PERCENT OF STUDENTS REPORTING HANDICAPS IN PUBLIC AND PRIVATE SCHOOLS: SPRING 1980

	U.S. Total	Public	Private		
			Total	Catholic	Other Private
Percent with some handicap other than visual (BB087A, 87C, D, E, F or G)	12.0	12.2	9.4	8.5	11.2
Percent with visual handicap (BB087B)	13.0	12.7	16.1	17.2	13.8
Percent with a physical condition, limiting work or education (BB088)	7.1	7.4	4.7	4.7	4.6

pronounced (table 3.4.2). These reports indicate that the average percentage of the student body that is handicapped in the public sector is more than double that in the non-Catholic private schools, and over four times that in the Catholic schools. The reason for this discrepancy between school reports and student reports is not clear. The comparison with table 3.4.1, which shows much less difference between sectors, suggests the possibility that students are classified as handicapped in public schools who would not be classified as handicapped in private schools. Three reasons for such a difference in classification seem possible: (1) in the larger schools found in the public sector, children who would be able to function normally in a smaller school must be classified as special and treated in a different fashion; (2) there is in the public sector an administrative incentive, in the form of government

TABLE 3.4.2

MEAN PERCENT OF SCHOOL'S STUDENT BODY THAT IS HANDICAPPED, AS REPORTED BY PRINCIPALS, AND CRITERIA USED TO CLASSIFY FOR PUBLIC AND PRIVATE SCHOOLS: SPRING 1980

	U.S. Total	Public	Private		
			Total	Catholic	Other Private
Mean percentage of students classified as handicapped (SB034 ÷ SB002A) ..	4.2	4.9	1.5	1.1	2.3
Percent of schools using various criteria to classify students					
standard test ...	74.9	90.1	28.1	33.0	18.2
Federal guidelines	74.6	91.7	18.0	23.4	7.1
State guidelines	79.6	96.6	23.0	28.0	12.9
Counselor's judgment	90.8	94.5	85.4	94.2	85.4

aid, for classifying children as handicapped, an incentive that does not exist or less often exists in the private sector; and (3) the more severely handicapped students, who would not respond to the survey, may be more numerous in the public sector. In any case, the data are clearly not sufficient for making inferences about the relative proportions of handicapped children in public and private schools.

Altogether, the information from the survey about handicapped children in public and private schools is not highly conclusive. It does show in broad outlines that public schools do serve proportionately more handicapped students, but that there are nonnegligible proportions of handicapped children in private schools--both Catholic and non-Catholic--as well.

3.5 The Predicted Impact of a Policy Change Facilitating Enrollment in Private Schools

It is possible to go a step further than we have gone thus far. There has been much discussion recently about the effects in various quarters of reducing the financial burden of private education. One proposal, which came near passage in Congress, was to provide tax credits for a portion of school tuition. Another widely discussed proposal urged the use of educational vouchers to allow all children to choose freely among private and public schools.

It has been have argued that such changes as this would differentially benefit the white upper-middle class, who use private schools more. Such changes would, in this view, extend still further the creaming process which leaves the poor and minorities in the public schools. Others argue that such measures would place private schooling in the reach of those who cannot now afford it, and thus differentially benefit minorities and those less well off financially.

It is possible with these data to predict what students would be recruited into private schools by a reduction in the financial burden, although a less direct reduction than that in either of these policy proposals. In particular, we know for each income level the proportions of students from a given group (say, Catholics, or blacks) in private schools (figures 3.1.1, 3.1.2, 3.1.3, and 3.1.4). This tells us the income elasticity of private schooling for each of these groups. Thus we can predict the recruitment into private schools from each group that would take place if there were a change that increased income by a fixed amount for all, as well as the defection from private schools that would take place if income were reduced by a fixed amount for all. We ask the former question, first with respect to whites, blacks, and Hispanics and second with respect to students from families with different income levels. Suppose income were increased by $1,000 for all, for example by a tax rebate or by a general increase in the standard of living. Would this mean that racial and economic segregation between public and private schools would be increased, by increasing the flow of white and middle- and upper-middle-class children into the private schools? Or would it mean that racial and economic segregation between these sectors would be decreased, as more blacks and Hispanics and lower income children in general came into the private schools?

This question can be answered by use of two items of information: the number of Hispanics, blacks, and non-Hispanic whites and the number of all children in the public school sector at each income level; and the increment in the proportion of students in private schools per $1,000 income increase at each income level for each group. Following the order of presentation of the earlier parts of this section, we will first examine the effects of this hypothetical policy change on the distribution of blacks, Hispanics, and whites among the school sectors.

Figure 3.1.1 (presented earlier) shows that the increase in the proportion of students attending Catholic schools with increase in income (the slope of the curve) is greatest for Hispanics. It is greater for whites than for blacks at low income levels, but, somewhat surprisingly, greater for blacks than for whites at high income levels. Figure 3.1.2 shows that for all three racial and ethnic groups the increase in the proportion attending other private schools is lower than that for Catholic schools, except at the highest income levels for non-Hispanic whites. The curve is especially flat for blacks, except at the upper extreme of income.

Table 3.5.1 gives the numbers on which figures 3.1.1 and 3.1.2 are based. For example, the figure of 3.0 percent in the upper left corner means that 3.0 percent of all the non-Hispanic whites from families earning below $7,000 in the United States are enrolled in Catholic schools. These numbers make it possible to calculate the frequencies at which whites, blacks, and Hispanics currently within the public sector could be expected to shift into the private sector, given an increase in income of $1,000. The upward slopes in figure 3.5.1 for each of the three racial or ethnic groups are reflected in the steady increments in the percentages of each of these three groups enrolled in the Catholic schools at increasing levels of income. Similarly, the relative flatness of the curves for blacks and Hispanics in other private schools are reflected in the small changes in percentages in rows 5 and 6 of table 3.5.1

To estimate the numbers of whites, blacks, and Hispanics currently in the public schools who would shift to the private schools if their families had incomes greater by $1,000, we calculate the enrollments of each group in each sector from figures 3.1.1 and 3.1.2 and table 3.5.1 with income shifted upward by $1,000. This assumes that the families at the new income levels would have the same rates of private school enrollment as families currently at that level.

To illustrate how such a calculation is made, let us suppose that 3 percent of the students from families earning between $7,000

TABLE 3.5.1

PERCENT OF WHITE, BLACK, HISPANIC, AND TOTAL STUDENTS FROM EACH FAMILY INCOME LEVEL IN CATHOLIC AND OTHER PRIVATE SCHOOLS, AND NUMBER IN PUBLIC SCHOOLS: SPRING 1980

School	Income Groups							
	Below $7,000	$7,000-12,000	$12,000-16,000	$16,000-20,000	$20,000-25,000	$25,000-38,000	Above $38,000	(No Income Data)
Catholic Schools:								
Total percent[a]	2.0	3.3	4.8	5.7	7.1	8.5	10.1	
Non-Hispanic white	3.0	3.7	5.2	6.0	7.3	8.7	10.2	
Non-Hispanic black	0.8	1.9	2.1	2.8	4.3	6.0	9.0	
Hispanic	2.0	4.2	5.6	7.1	9.0	9.0	13.9	
Other Private Schools:								
Total percent[a]	1.3	1.7	2.3	2.7	3.0	3.3	8.7	
Non-Hispanic white	2.3	2.0	2.7	2.9	3.3	3.5	9.2	
Non-Hispanic black	0.4	1.0	0.5	0.9	0.6	0.7	1.9	
Hispanic	0.3	1.5	1.7	2.2	2.0	3.7	4.3	
Numbers in Public Schools:								
Total[a]	403,574	654,354	900,611	995,124	945,696	766,748	580,886	
Non-Hispanic white	185,773	402,767	675,377	798,825	777,586	663,290	501,702	608,639
Non-Hispanic black	141,383	153,302	120,723	98,830	84,661	49,449	32,730	151,752
Hispanic	56,426	70,943	67,939	63,600	54,341	31,823	22,564	63,078
Other	18,575	26,426	35,226	32,419	26,435	20,347	22,233	40,482

---

[a] Total numbers and percents are for students who gave a usable response to the question about family income (BB101). As these totals include students who did not give a usable response to the race-ethnicity variable, the sum of the numbers of whites, blacks, Hispanics, and Others in the public schools at each income level is slightly smaller than the totals listed.

and $8,000 and 5 percent of the students from families earning between $8,000 and $9,000 are enrolled in private schools. Then, if income is increased by $1,000, the rates of private school enrollment for students from the families who had had income levels of $7,000 to $8,000 would increase from 3 percent to 5 percent. If there are 100,000 students from families at that income level, the increase in the number of students in private schools would be 100,000 x .02, or 2,000. As the seven income categories that our data provide have intervals larger than $1,000 adjustments must be made to carry out the calculations. This procedure is described in the note to table 3.5.2.

Table 3.5.2 gives the results of the calculations: the expected numbers of whites, blacks, and Hispanics who would shift from the public schools to private schools with an increase of $1,000 in family income, and the racial and ethnic compositions of the group shifting. The results of this hypothetical experiment are interesting. First, only a very small proportion of public school students would shift, less than half of 1 percent of any of the three groups. Second, and somewhat surprising, the greatest shift would come among the Hispanics. Third, in both of the private sectors, the racial and ethnic composition of the group shifting (column 3) includes more minorities than does the current composition of these schools. Fourth, among those shifting into the Catholic sector, there is a higher proportion of minorities (column 3, .12 + .11 = .23) than in U.S. schools as a whole (column 5, .13 + .07 = .20); but this is not true in the other private sector (.03 + .06 = .09).

Altogether, what can be said in response to the questions posed is that the racial segregation between the public and the private schools

TABLE 3.5.2

PREDICTED NUMBERS OF HISPANICS, NON-HISPANIC BLACKS, AND NON-HISPANIC WHITES SHIFTING TO CATHOLIC AND OTHER PRIVATE SCHOOLS WITH $1,000 INCREASE IN FAMILY INCOME:[a] SPRING 1980

Group	Predicted Number	Proportion of those in Public School	Proportion of those Shifting[b]	Present Composition[c]	
				Sector	U.S.
			To Catholic Schools		
Total	10,440		1.00	1.00	1.00
Non-Hispanic whites	8,041	.0020	.77	.85	.77
Non-Hispanic blacks	1,213	.0018	.12	.06	.12
Hispanics	1,186	.0032	.11	.07	.07
			To Other Private Schools		
Total	6,025		1.00	1.00	1.00
Non-Hispanic whites	5,484	.0014	.91	.90	.77
Non-Hispanic blacks	172	.0003	.03	.03	.12
Hispanics	369	.0010	.06	.04	.07
			Total		
Total	16,465		1.00	1.00	1.00
Non-Hispanic whites	13,525	.0033	.82	.86	.77
Non-Hispanic blacks	1,385	.0020	.09	.05	.12
Hispanics	1,555	.0042	.10	.06	.07

[a] In the calculations, each of the seven income ranges is identified with its midpoint. For the "below $7,000" category, the midpoint is set at $3.500; for the "above $38,000" category, the midpoint is assigned at $45,000. In order to approximate the percentages of whites, blacks, and Hispanics at each $1,000 increment, the differences between the percentages at the seven income levels are divided by the number of $1,000 increments that are between the midpoints of adjacent levels. The calculation is carried out as follows: $N_{ijp} \times S_{ij}$, where N_{ijp} is the number from racial or ethnic group i in income level j in public schools (sophomores and seniors combined) and S_{ij} is, for racial or ethnic group i at income level j, the estimated change in proportion in Catholic or other private schools with increment of $1,000 in income. S_{ij} is calculated for each income level as described below. For each of the seven levels, this is:

level 1 (below $7,000)	$(P_2 - P_1)/6$
level 2 ($7 - 12,000)	$\frac{1}{2}[(P_2 - P_1)/6 + (P_3 - P_2)/4.5]$
level 3 ($12 - 16,000)	$\frac{1}{2}[(P_3 - P_2)/4.5 + (P_4 - P_3)/4.0]$
level 4 ($16 - 20,000)	$\frac{1}{2}[(P_4 - P_3)/4 + (P_5 - P_4)/4.5]$
level 5 ($20 - 25,000)	$\frac{1}{2}[(P_5 - P_4)/4.5 + (P_6 - P_5)/9]$
level 6 ($25 - 38,000)	$\frac{1}{2}[(P_6 - P_5)/9 + (P_7 - P_6)/13.5]$
level 7 (above $38,000)	$(P_7 - P_6)/13.5$

The second column, proportion of those in public school, is obtained by taking the total number of sophomores and seniors in public school, subtracting out the number who did not report family income (and thus were not used in the above calculations), and dividing this into the predicted number shifting.

[b] "Proportion of those shifting" may not add to 1.00 because of rounding.

[c] The proportions in these two columns are based on numbers of whites, blacks and Hispanics who gave a usable response to the question about family income (BB101), and will thus differ somewhat from other figures in this section.

as a whole would be reduced by such a change, because the proportion of minorities among those coming into the private schools would be somewhat greater than the proportion already in these schools--and that this would come about primarily through the shifts of minorities (especially Hispanics and higher income blacks) into the Catholic schools. Thus the common belief that policies encouraging attendance at private schools would increase racial and ethnic segregation is not at all supported by these data, since the data indicate that for Catholic schools, which constitute two-thirds of the private sector, both blacks and Hispanics would respond to financial incentives to as great an extent as, or to a greater extent than, whites, and that both parts of the private sector would come to have higher proportions of minorities than they now do.

Using the same hypothetical policy change, we can calculate the number of students from each income level that could be expected to shift from the public to the private schools as a result of such a change. The figures needed for this calculation are given in table 3.5.1 in the rows labeled "Total," and the method is the same as that described in the note to table 3.5.2.

Table 3.5.3 gives the results of this exercise. In order to simplify the presentation, the seven-category income variable (BB101) is collapsed into three categories. The figures under the "Total" heading show the combined shifts into both private sectors. Column 2 shows that this policy change would lead about equal proportions of students from the three income levels to shift. This would mean, as shown in column 3, that the income composition of those shifting would be .191 in the lowest income category, .370 in the middle category, and .440 in the highest category. This distribution is much less skewed than

TABLE 3.5.3

PREDICTED NUMBERS OF STUDENTS AT DIFFERENT INCOME LEVELS SHIFTING TO CATHOLIC AND OTHER PRIVATE SCHOOLS WITH $1,000 INCREASE IN FAMILY INCOME: SPRING 1980

Income Level[a]	Predicted Number[b]	Proportion of those in Public School	Proportion of those Shifting[c]	Present Composition	
				Sector	U.S.
		To Catholic Schools			
Total	11,874	.0023	1.000	1.000	1.000
1. Below $12,000	2,720	.0026	.229	.087	.191
2. $12,000 - 19,000	5,209	.0027	.438	.301	.354
3. $20,000 or more	3,945	.0017	.332	.612	.455
		To Other Private Schools			
Total	7,298	.0014	1.000	1.000	1.000
1. Below $12,000	937	.0009	.129	.091	.191
2. $12,000 - 19,000	1,877	.0010	.257	.267	.354
3. $20,000 or more	4,484	.0020	.614	.641	.455
		Total			
Total	19,172	.0037	1.000	1.000	1.000
1. Below $12,000	3,657	.0035	.191	.089	.191
2. $12,000 - 19,000	7,086	.0037	.370	.290	.354
3. $20,000 or more	8,429	.0037	.440	.622	.458

[a] The seven-income categories of variable BB101 are collapsed into these three levels in order to simplify presentation.

[b] The method of calculation used to obtain the predicted numbers at each income level shifting is the same as that described in footnote a to table 3.5.2, except that the N_{ijp} and S_{ij} terms reduce here to N_{jp} and S_j—the number of students in income level j in the public schools, and the estimated change in proportion in Catholic or other private schools for the group of students at income level j, respectively.

[c] "Proportion of those shifting" may not add to 1.000 because of rounding.

that currently in the private schools, and is approximately the same as the overall U.S. distribution. The conclusion, then, is that a policy change of this sort would function to decrease the between-sector economic segregation.

The patterns for Catholic schools and the other private schools reveal some interesting differences. Students from lower- and middle-income families would constitute a far larger proportion of the incoming students in the Catholic schools than in the other private schools (.229 + .438 = .667 versus .129 + .257 = .386). Nonetheless, when the proportions shifting are compared to the proportions currently enrolled, it is clear that in both private school sectors the income distribution would move in the direction of the overall U.S. distribution.

Though this hypothetical experiment is suggestive, it would be better if we were able to predict the results of a different policy, such as a tuition tax credit, say of $500. Such a credit would have the effect of reducing the tuition for private schools by $500 divided by the number of children a family has in school. To make such a prediction, however, we would need information on the price elasticity of private schooling for each of these groups, rather than on income elasticity. By making some heroic assumptions, one might be able to use these data to estimate something about the effect of such a policy; but we will not do so here because we are unwilling to make such assumptions.

CHAPTER 4

SCHOOL RESOURCES

The physical and human resources available in a school constitute the boundaries of opportunity for students within that school. Only, for instance, if calculus is taught at a school should one anticipate that students at that school may master certain mathematical principles. By school resources, then, we refer to course offerings provided to students, physical facilities available to students, special and federally funded programs, and the quantity, quality, and breadth of teaching and professional support personnel.

The debate concerning the relative merits of private and public secondary schools incorporates some presumed resource differences between these two sectors. For example, some argue that public schools, because of their size and school district linkages, can provide a wider range of course offerings to students. And, insofar as size continues to distinguish public schools from other types, they will provide a broader range more efficiently. Others have argued that the limitations of private schools in this area are more than compensated for by the greater attention that students receive in the private sector. This chapter provides information relevant to this aspect of the public-versus-private debate.

In comparing school resources, we include the two special subgroups of schools referred to in chapter 1, high-performance public schools and high-performance private schools. Although the selection of these schools was based not on representativeness but on the proportion of high-performing seniors, the resources available to students in them show something about what exists in public and private schools where academic performance is especially high. For simplicity of exposition, we sometimes refer to these subgroups of schools as "sectors," but when we speak of the "three school sectors," the reference is always to the public, Catholic, and other private sectors.

The school questionnaire provides information on a number of resources provided by the school, but our analysis will be limited in certain areas. The most important omission is the general level of expenditure at schools. Principals were informed that they need not respond to an item about per-pupil expenditure if they had recently provided this information in an NCES survey. Since this information had been provided by many schools in the preceding year, the item remained unanswered for a large number of schools. Until the data from these earlier surveys are added, per-pupil expenditure is unavailable for analysis.

For certain resources (those that varied according to school enrollment), two tables will be presented: one that reports the percentage of schools within each sector having a particular resource and one that reports the percentage of sophomore students within each sector attending a school where a particular resource exists (referred to as student accessibility).[1] This manner of presentation allows examination of

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[1] To determine the percentage of sophomores in each sector having access to the course the response on each item was weighted by the sum of sophomore weights attached to that school. These weighted responses were then summed for each sector to determine the percentage of sophomores having access to each resource. The proportion of sophomores in the total student population represented by a given school is slightly different from the proportion of seniors, primarily because of differential dropout between the sophomore and senior years. However, in the analysis we assume that this weighted sophomore estimate is sufficiently close to that for the high school student body as a whole that we can simply make reference to "students" within various sectors.

Obviously, our term "access" cannot be strictly correct for those courses with prerequisites. A student must have had second-year both the resource variability among sectors and, through a comparison of the two tables, the extent to which certain resources are disproportionately found at larger schools. Most of the analysis, however, focuses on the accessibility of various resources within each sector.

4.1 Course Offerings

Table 4.1.1 shows the percentage of schools within each sector offering a selected sample of academic, technical, and vocational courses. The items were taken from a larger list in the school questionnaire (see appendix B). The percentage of students within each type of school having access to these courses is reported in table 4.1.2. Our analysis will begin with mathematics and science, those courses presumed to be the most demanding, as well as especially important to the successful pursuit of many branches of postsecondary education.

4.1.1 Mathematics and science courses

Nationally, nearly all schools offer algebra 2 and geometry (95 to 100 percent). A smaller percentage of schools offer trigonometry (76 percent) and calculus (47 percent), but table 4.1.2 shows that student access to these subjects is better than these percentages suggest: 84 percent of students have access to trigonometry and 62 percent to calculus. However, variations do exist among sectors for some mathematics and science course offerings. For example, nearly all students in high-performance public and private schools have access to a calculus course, as compared with 63 percent in public schools, 71 percent in Catholic schools, and 61 percent in other private schools. For the country as a whole, nearly all students have access to physics and chemistry (96

French to be eligible for (and therefore have access to) third-year French. The use of the term "access" has been chosen, then, to reduce the degree of convolution necessary to communicate the variation among sectors from the student's perspective.

TABLE 4.1.1

PERCENT OF PUBLIC AND PRIVATE SCHOOLS OFFERING SPECIFIC COURSES: SPRING 1980

Course	U.S. Total	Major Sectors			High-Performance Schools	
		Public	Catholic	Other Private	Public	Private
Total number of schools	20,316	15,766	1,571	2,966	12	11
Mathematics:						
Geometry	97	96	100	95	100	100
Algebra 2	96	97	98	95	100	100
Trigonometry[a]	76	76	91	69	96	70
Calculus	47	47	60	38	94	100
Science:						
Chemistry	94	96	100	79	100	100
Physics	89	90	95	79	100	100
Language:						
3rd Year Spanish	45	46	86	19	100	60
3rd Year French	39	39	76	22	81	100
3rd Year German	20	20	27	16	76	40
Other:						
Auto Mechanics	41	50	8	12	68	10
Driver Training	82	89	63	52	81	20
Economics	63	63	71	58	80	90
Ethnic or Black Studies	16	16	16	12	41	20
Family Life or Sex Education	65	69	63	45	66	30
Home Economics	84	97	50	33	100	10
Psychology	59	58	56	66	89	80
Wood or Machine Shop	74	89	4	32	100	50

[a] Possible error: may underestimate coverage of topic. Trigonometry may be incorporated into another subject, such as analytical geometry, and not reported here.

TABLE 4.1.2

PERCENT OF SOPHOMORE STUDENTS IN PUBLIC AND PRIVATE SCHOOLS ATTENDING SCHOOLS WHERE SPECIFIC COURSES ARE OFFERED: SPRING 1980

Course	U.S. Total	Major Sectors			High-Performance Schools	
		Public	Catholic	Other Private	Public	Private
Mathematics:						
Geometry	99	99	100	98	100	100
Algebra 2	98	98	97	98	100	100
Trigonometry[a]	84	84	91	90	93	74
Calculus	63	62	71	61	94	100
Science:						
Chemistry	98	98	100	92	100	100
Physics	96	96	96	91	100	100
Language:						
3rd Year Spanish	72	72	94	44	100	68
3rd Year French	65	64	82	48	91	100
3rd Year German	39	40	40	31	82	44
Other:						
Auto Mechanics	61	66	11	18	65	14
Driver Training	86	87	68	74	78	25
Economics	72	71	79	73	79	86
Ethnic or Black Studies	28	29	17	9	45	25
Family Life or Sex Education	76	76	67	67	79	32
Home Economics	93	96	61	45	100	11
Psychology	71	71	72	69	88	82
Wood or Machine Shop	87	94	9	50	100	47

[a] Possible error: may underestimate coverage of subject. Trigonometry may be incorporated into another subject, such as analytical geometry, and not reported here.

But the different sectors vary considerably in their offerings. Among the three sectors, Catholic schools show the most extensive language offerings: more than three quarters offer third-year French and even more offer third-year Spanish; less than half of the public schools and less than a quarter of the other private schools offer these courses. In all three sectors, only about a quarter or less of schools offer third-year German. Both public and private high-performance schools have more extensive language offerings than the schools in any of the three major sectors, but German is available less often than the other two languages even in these schools.

Student access to these courses provides a different view on the question, revealing more clearly the differences in opportunities among the sectors. The other private and public sectors show the largest shift, indicating the great variation in language course offerings between large and small schools in these two sectors. In general, it is in the smaller schools that these courses are not offered, so that the percentage of students having access to the courses is greater than the percentage of schools offering them.

In addition to the variation in language course offerings with school size in the public and other private sectors, patterns not shown in the tables appear noteworthy. Third-year courses in one language appear to be offered at the expense of similarly advanced courses in other languages in both the public and other private sectors. Moreover, 73 percent of the other private schools offer no third-year language courses, leaving 44 percent of the students without access to any third-year language. In contrast, the majority of Catholic schools offer third-year courses for at least two languages.

percent and 98 percent, respectively) and there are only slight differences among sectors. In every sector, over 90 percent of the students have access to these basic science courses.

Thus, there is only one substantial difference in science and mathematics course accessibility among these sectors--calculus--and it arises in the high-performance schools, in both the public and private sectors. Among the three sectors, Catholic schools show slightly higher accessibility rates for science and mathematics courses than do public or other private schools.

4.1.2 Language courses

Language course offerings, in addition to their presumed value in augmenting one's mastery of English, provide the skills relevant to several dimensions of adult life. For instance, German has traditionally been considered the second language of serious academic pursuits, French the language of culture, and Spanish the practical language of American citizens. Although one should be quite cautious in making inferences from such a typology, it may provide some orientation to the differences in language learning opportunities among public, Catholic, and other private schools.

In order to assess the degree to which students have an opportunity to acquire mastery of these languages, school administrators were asked to report whether their schools offered third-year Spanish, French, and German. Nationally, 45 percent of the schools offer third-year Spanish, 39 percent third-year French, and 20 percent third-year German. Overall, this shows very little attention to foreign languages in an era in which there is more international mobility and communication than ever before.

4.1.4 Technical, vocational, and practical courses

The last series of courses we will consider are those that are technical, vocational, or practical in nature: auto mechanics, wood or machine shop, driver training, and home economics. Here there are extensive differences between the public and private sectors. In the public sector, well over half (66 percent) of the students have access to an auto mechanics course, 94 percent to a wood or machine shop course, 87 percent to a driver's training course, and 96 percent to a home economics course. Only in the case of driver's training are any of the private sectors close to comparability, although home economics is available to about half the students in private schools. The lowest accessibility to technical or vocational courses is to be found in the Catholic sector, where wood or machine shop courses and courses in auto mechanics are each available to only about 10 percent of the students.

It is in this area of technical and vocational courses that high-performance private and public schools differ the most in course offerings. Well over half of the students in the high-performance public schools have access to these courses, whereas less than half of those in high-performance private schools have such access. This suggests the difference in character of these two sets of high-performance schools: the public schools are large and comprehensive; the smaller private schools, specializing as college preparatory schools, seldom offer the more practical courses.

More generally, students in public schools have much greater access to technical and vocational courses than those in private schools. (The degree to which access translates into utilization will be examined in chapter 5.) Although we cannot investigate the sources of these

Returning to the initial typology, it can be said that both Catholic and public schools emphasize Spanish, "the practical language;" that Catholic schools, as well as the high-performance schools, tend to emphasize French, "the language of culture;" and that high-performance public schools provide German, "the language of scholarship," more often than any other type of school. In summary, there are two major generalizations: German is least often available in all sectors; and students in the other private sector are least likely to have access to a third year of study in each of the languages.

4.1.3 Social studies courses

In the area of social studies, four courses are available for analysis: economics, ethnic or black studies, family life or sex education, and psychology. We will simply attempt to highlight some of the initial findings here. Extra caution should be taken in the interpretation of accessibility to these courses, since the subject-matter boundaries are more fluid than any of those we have yet considered.

Economics and psychology are available to comparable proportions of students: between 69 percent and 86 percent of the students in each of the sectors have access to these courses. Ethnic or black studies are available to substantially fewer students in any sector. The greatest accessibility is found in the public sector, where 29 percent of the students in public schools as a whole and 45 percent in the high-performance schools attend a school where such a course is offered. Lowest accessibility to such courses is found in the other private schools. Family life or sex education courses are available to the majority of students in all sectors (except the high-performance private). Again, the greatest accessibility to these courses is found in the public sector.

differences in course offerings, one possible source can be suggested. Technical and vocational courses are more costly than others. The low availability of these courses in Catholic and other private schools may be due in part to their cost relative to their perceived value by parents.

4.2 Staffing Patterns

Staffing patterns represent the varying capacities of schools to foster intellectual and emotional growth for students and to provide an environment in which these can take place. To assess the degree to which private and public schools differ in their staffing patterns, and thereby in their capacities to provide resources for intellectual and emotional growth, we report simple student-to-staff ratios within each sector.[1]

As the first line of table 4.2.1 shows, Catholic and public schools have much larger ratios of students to staff members than do other private schools. Catholic and public schools have a student-professional staff ratio of 16 and 15 respectively; the other private schools have, on average, 6 students for each full-time professional staff person.

Nearly all of this difference is attributable, of course, to the student-teacher ratio, shown in line 2 of the table. Among the three sectors, Catholic schools have the highest student-teacher ratio (18), followed closely by public schools, while the other private schools have less than half as many students per teacher. Comparison of the

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[1] The formula used in calculating these ratios is shown at the bottom of table 4.2.1.

TABLE 4.2.1

STAFFING RATIOS FOR PUBLIC AND PRIVATE SCHOOLS: SPRING 1980
($\bar{X}$ number of students per staff type[a])

Staff	Major Sectors			High-Performance Schools	
	Public	Catholic	Other Private	Public	Private
Total number of schools	16,051	1,572	3,123	12	11
Mean enrollment	757	546	153	1,386	310
General professional staff:					
Overall ratio	15	16	8	15	7
A. Teachers	16	18	7	18	8
B. Assistant Principals, Deans	503	410	120	433	163
C. Counselors	323	235	55	284	182
D. Librarians and Media Specialists	597	340	212	696	163
E. Remedial Specialists	504	891	382	563	0
F. Psychologists	2,025	4,579	1,177	2,064	1,033
Other staff:					
A. Teacher aides	349	2,549	124	380	1,033
B. Volunteers	839	385	101	312	344
C. Security Guards	1,824	17,055	780	1,868	1,395

[a] $\text{Ratio} = \dfrac{\text{weighted enrollment}}{\text{weighted number of full-time equilivant staff}}$.

high-performance schools shows the same public-private difference, with the private schools having less than half as many students per teacher.

Other staffing ratios associated with intellectual stimulation and growth include those for librarians and media specialists, remedial specialists, and teacher aides. Among the three sectors, the greatest difference in these staffing patterns is the smaller number of students per remedial specialist and teacher aide in other private schools. It is possible that the low ratio of students to remedial specialists reflects the higher incidence of special education schools in the other private sector (as shown in table 2.2.2). High-performance private schools provide the greatest number of librarians and media specialists. Of course, some of this variation is attributable to school size (to be discussed later).

In the areas of emotional growth and control of the school environment, we look at three student-to-staff rations: assistant principals and deans, counselors, and security guards. Again, among the three major sectors the other private private schools have the lowest student-to-staff ratios. Of particular note is the low student-to-counselor ratio in the other-private schools (55, as compared with 324 in the public schools and 235 in Catholic schools). Catholic schools show the highest student-to-security-guard ratio, indicating that there are very few Catholic schools with security guards. The ratio of full-time security guards to schools is approximately 1 for every 2.4 public schools, 1 for every 31 Catholic schools, and 1 for every 5 other private schools.

Finally, it is interesting to note the incidence of volunteers within each school type. Volunteers, relative to student enrollment, provide the least service to public schools, where there is on the average 1 full-time volunteer for every 841 students. By contrast, other private schools have the greatest intensity of volunteer service--approximately 1 full-time volunteer for every 100 students.

These comparisions on staffing patterns can be misleading, given the different sizes of the schools in each sector. That the public schools tend to be large and the other private schools very small means that if there were 1 staff member per 757 students in both of these sectors there would be 1 per school in the public sector and only 1 for every 5 schools in the other private sector. Thus, the ratios of students to remedial specialists of 382 to 1 in the other private sector and 504 to 1 in the public sector work out to be 1.5 per school in the public sector, but only 0.4 per school in the other private sector. And although the number of students per assistant principal and dean is only 120 in other private schools compared to 503 in public schools, this means 1.3 per school in the other private sector and 1.5 per school in the public sector.

In addition to the quantity of personnel available to students, the quality or training of personnel is also relevant to a student's intellectual growth. The proportion of teachers holding master's or doctor's degrees is one indicator of staff quality. The three sectors do not differ markedly in the proportion of teachers holding advanced degrees (not shown in the table): the average public school has 39 percent of its teachers holding master's or doctor's degrees, the average Catholic school 42 percent, and the average other private school 34 percent. The high-performance schools, however, do differ from the others in this respect. In the public high-performance schools, 67 percent of the teachers hold advanced degrees, and in the private high-performance schools 54 percent hold advanced degrees.

Regarding staff resources, then, one can draw several conclusions. There is a striking contrast between the student-teacher ratios in the public and Catholic schools and that in the other private schools. For specialized staff, the comparison is more difficult: the student-staff ratios are in many cases lower in the other private schools, but the fact that the other private schools tend to be small means that there are fewer of them with at least one such specialist than there are public or Catholic schools. The three sectors are similar in the proportions of their teaching staff with advanced degrees, but high-performance public and private schools have higher percentages of teachers with advanced degrees.

4.3 Special Programs

Financial resources translate not only into staff and curriculum, but also into programs serving the special needs and interests of students. Table 4.3.1 shows for each sector the percentages of students having access to selected special programs. We examine three classes of special programs: alternative credit programs, programs for the talented, and programs for students with special interests or needs.

Alternative means of earning high school credits provide students with a broader set of learning-experience options. This survey inquired about three alternative means: work experience or occupational training credit, travel for credit, and credit by contract. Public and private schools differ most in the proportion of students having access to work experience or occupational training credit: 88 percent of the students in public schools have access to this alternative means of earning credit, compared with 42 percent in Catholic schools and 30 percent in other private schools. Substantially fewer students in all types of schools have access to travel for credit or credit by contract.

TABLE 4.3.1

PERCENT OF SOPHOMORES IN PUBLIC AND PRIVATE SCHOOLS HAVING ACCESS TO SELECTED SPECIAL PROGRAMS: SPRING 1980[a]

Program	U.S. Total	Major Sectors			High-Performance Schools	
		Public	Catholic	Other Private	Public	Private
Work experience or occupational training credit	83	88	42	30	89	25
Credit by contract	30	31	24	18	50	11
Travel for credit	13	13	14	8	56	24
College board advanced placement courses	47	47	49	42	85	100
Program for gifted or talented	56	58	37	36	56	73
Bilingual program	28	31	5	6	50	0
Alternative school program	47	51	8	11	50	0
Program for pregnant girls or mothers	41	43	22	15	24	0
Student exchange program	55	57	37	44	67	78

[a] Sophomore access was calculated by weighting the school response by the sum of sophomore weights in that school. These weighted responses were then summed for each sector to determine the proportions of sophomores in a given sector having access to a program. (See footnote on p. 4-2 for further discussion.)

Nationally, 13 percent of all schools have travel for credit, and 30 percent have credit-by-contract programs. Travel for credit is more often found in high-performance schools, both public and private. Credit by contract, while in evidence within all school types, is more often available to public school students.

Programs oriented toward high-achieving students are available in all types of schools with a few substantial, but not surprising, differences. Programs for the gifted or talented appear in relatively low proportions in all but the high-performance schools. The similarity among the public, Catholic, and other private sectors is greatest in the area of college board advanced placement courses (between 42 and 49 percent of the students in each of these sectors have access to such courses) and this similarity is in sharp contrast to the high-performance public and private schools, where nearly all students have access.

Programs for students with special needs or interests include bilingual programs, alternative-school programs, programs for pregnant girls, and student-exchange programs. Generally, more public schools than private schools have these programs. In particular, bilingual programs are offered with substantially greater frequency in public schools. Approximately a third of the students in all public schools have access to such a program, as do half the students in high-performance public schools.

Alternative-school programs and those for pregnant girls appear most frequently in public schools. Alternative schools began in the 1960s outside the public school system, and table 2.2.2 showed that in the total universe of schools there is a higher percentage of alternative schools in some types of private schools than in the public sector. However, this question asked about alternative programs in the school. Although very few public schools are alternative schools (1.4 percent; table 2.2.2), many have alternative-school program for a subset of students within the school. It is this which accounts for the relatively high percentages for public schools in table 4.3.1.

The major differences among the three sectors in the availability of special programs appear to be two: first, public schools have more programs emphasizing concrete career preparatory experience; second, public schools have on the whole more of the special programs discussed than does either of the private sectors.

4.4 Physical Facilities

The physical facilities of a school do more than provide space for traditional classroom activity. For instance, subject-area resource centers may provide a way for students to pursue the activity of learning more informally, student lounges and cafeterias provide arenas for student culture to emerge, and areas allocated for remedial assistance provide space for specialized equipment and resources.

Table 4.4.1 shows the frequency with which various facilities are available to students in each sector. The accessibility of career-related facilities in the public sector points again to its stronger orientation toward career preparation: 85 percent of the public school students attend a school where there is a career information center, and 30 percent attend a school where there is an occupational training center. Only Catholic schools exceed public schools in the availability of career information centers.

The provision of special laboratories for remedial reading and mathematics work are most in evidence in public schools: about two-thirds of the students in this sector are in schools with at least one of these facilities. In the Catholic sector, about half of the students

TABLE 4.4.1

PERCENT OF SOPHOMORES IN PUBLIC AND PRIVATE SCHOOLS HAVING ACCESS TO CERTAIN PHYSICAL FACILITIES: SPRING 1980[a]

Facility	U.S. Total	Major Sectors			High-Performance Schools	
		Public	Catholic	Other Private	Public	Private
Subject area resource center (not library)	26	25	42	27	56	70
Career information center	85	85	92	51	89	49
Occupational training center	27	30	1	0	18	0
Remedial reading or mathematics laboratory	67	69	50	27	69	11
Media production facilities	56	56	51	63	51	64
Indoor lounge	22	21	26	63	45	93
Cafeteria	96	97	92	82	100	82

[a] Sophomore access was calculated by weighting the school response by the sum of the weights in that school. These weighted responses were then summed for each sector to determine the proportions of sophomores in a given sector having access to each facility. (See footnote on p. 4-2 for further discussion.)

are in schools with such a laboratory, while only 11 percent of the students in the other private sector are in schools with such a laboratory.

Over half of the students in every school type attend schools with media production facilities. Without greater detail on their utilization and capacities, few inferences can be made. One can assume at minimum, however, that these facilities make a wider variety of instructional materials available, including both educational video programs and educational programs originally prepared for commercial or public television.

Among the three major sectors, student lounges appear most frequently in other private schools, and almost all high-performance-private schools have student lounges. It is possible that the small enrollments of other private schools makes it more feasible to provide this facility. Nearly all schools of all types have student cafeterias.

This comparison of facilities points again to the general similarities between Catholic and public schools as compared to the other private schools. These measures of physical facilities are of course superficial; a comprehensive comparison of physical facilities in different sectors would require a different sort of survey.

4.5 Federal Programs

One set of resources for which we expect to find differences between public and private schools is federally financed programs. For instance, given that many of the federal funds under the Elementary and Secondary Education Act (ESEA) are targeted to groups with special needs, we might expect private schools to participate less frequently. Yet private schools are eligible for Federal funds, and some participate in Federal programs. It is instructive, in this context, to review the current participation in Federal programs of public and private schools.

Federal programs for education maintain certain eligibility criteria for schools, usually compensatory or vocational in nature, which may limit the number of schools eligible for funding.[1] Also, in some areas funding is not automatic, but depends on proposals from the school or school district, and schools differ in their initiative in obtaining Federal funds. The differences in federally funded programs at different schools are a result of both of these factors.[2]

ESEA provides a broad range of resources and program opportunities to school districts and schools. While eligibility varies among programs, private schools participate in most of the ESEA programs that the survey covers. (In not all cases does a positive response by a school administrator mean that a school participates as a school. The question was worded so that a positive response could mean participation in the program by some students in the school.) The participation rate of private schools is highest in the library program (Title IVB), in which nearly all of the Catholic schools, 43 percent of the other private schools, and 50 percent of the high-performance private schools participate (see table 4.5.1). Catholic schools participate in this program at a higher rate than public schools. In other ESEA programs, considered all together, Catholic schools generally participate less than public schools, but their participation is not neglible; other private schools participate hardly at all.

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[1] Eligibility for funding under these Federal programs differs somewhat for public and private schools. ESEA Title I funds are allocated through state education agencies to local educational agencies (LEAs). Although private schools that meet the Title I criteria are eligible, participation depends upon arrangements with the LEA. Probably in part as a result of the method of allocation, private secondary institutions seldom participate in Title I programs. For this and some of the other Federal programs, some of the positive responses by school administrators may be in error. Funds authorized by Titles IVB, IVC, IVD, VII, and IX in ESEA explicitly permit funding to private secondary schools, provided, of course, that other eligibility and use criteria are met. Federal legislation also permits Vocational Education Act (VEA) funds to be given to private secondary schools, but it appears that most state plans for VEA funds do not include private secondary schools. (See The Condition of Vocational Education 1980 or Galladay and Wulfsberg 1980.)

Guidelines for Talent Search and Upward Bound programs indicate that this money goes almost exclusively to higher education institutions, with high school students participating individually in the programs. Comprehensive Employment and Training Act (CETA) programs are administered by the Department of Labor, and the prime sponsor is ordinarily not an educational institution. Thus, high school students participate in these three programs, while high schools themselves do not.

[2] For discussion of the status of Federal programs in private schools, see Summary and Evaluation Report and How to Service Students with Federal Education Program Benefits, both published in 1980 under the auspices of the Technical Assistance Institutes at the National Catholic Educational Association.

Among vocationally oriented programs, the differential participation of public schools is even more evident. Participation in the programs associated with CETA and VEA is almost exclusively in public schools. Catholic schools show low participation rates, and other private schools participate almost not at all. At the other extreme, high-performance public schools show almost universal participation in Federal work programs (Cooperative Education and Work Study).

In general, federally funded vocationally oriented programs are largely the domain of public schools. In ESEA programs, Catholic schools participate at levels comparable to schools in the public sector for some titles, while other private schools seldom participate, except in the library program.

4.6 Conclusion

A number of patterns distinguishing the school resources of the different sectors can be seen in the variations shown in this chapter.

TABLE 4.5.1

PERCENT OF PUBLIC AND PRIVATE SCHOOLS REPORTING THAT THE SCHOOL OR ITS STUDENTS PARTICIPATED IN SELECTED FEDERAL PROGRAMS: SPRING 1980

Program[a]	U.S. Total	Major Sectors			High-Performance Schools	
		Public	Catholic	Other Private	Public	Private
Elementary & Secondary Education Act (ESEA):						
Title I: Economic disadvantaged ..	56	69	24	1	21	20
IVB: Library	81	86	99	43	76	50
IVC: Educational innovation ..	31	38	22	0	42	20
IVD: Supplementary centers ...	22	23	31	12	17	0
VII: Bilingual education	10	12	0	4	33	0
IX: Ethnic heritage series ..	7	8	13	0	4	0
Vocational Education Act 63 (VEA):						
Consumer and homemaking	60	77	8	1	69	0
Basic program	53	67	5	1	20	0
Persons with special needs	38	48	5	1	80	0
Cooperative education	45	55	14	6	91	0
High school work study	44	55	6	6	94	0
Comprehensive Employment and Training Act (CETA)	65	81	17	5	84	0
Upward Bound	17	21	8	2	23	10
Talent Search	13	16	4	1	1	20

[a] Participation is usually by school for ESEA and VEA programs; the remaining programs generally involve student-level participation at the secondary level.

First, there is the effect of size differences, which lead the other private schools, smallest in size on the average, and, to a lesser extent, the Catholic schools to have a narrower range of courses than do the public schools, to have special programs less often, and to have fewer physical facilities (such as remedial reading laboratories).

Second, there is a difference in orientation, which means that the courses and programs less frequently found in private schools are of certain types: vocational and technical courses, work-related programs, and, in general, nonacademic courses and programs. The one traditional academic area in which courses are least often found in other private schools is foreign languages. Other differences in orientation are found in the high-performance schools. These schools, public and private, differ from other schools in more uniformly providing advanced academic resources. The high-performance private schools differ from one another, however, in the context in which these resources are offered: the high-performance private schools are more narrowly specialized in academic directions, while their public-sector counterparts superimpose more advanced academic courses and programs on an even more comprehensive range of courses and programs than is found in the public sector as a whole.

Third, the other private schools have a much lower student-teacher ratio than the public and Catholic schools. The other private schools operate with many fewer students per teacher than do the public or Catholic schools--a difference so strong that the low student-teacher ratio might be considered a hallmark characteristic of non-Catholic private schools. The low ratio probably arises in part from the small size of the other private schools and in part from conscious policy.

Fourth, private schools overall show lower participation in federally funded programs, but this is selective, with Catholic schools participating as frequently as public schools in a few of the programs.

CHAPTER 5

THE FUNCTIONING OF PUBLIC AND PRIVATE SCHOOLS

The functioning of a school depends both on its student resources and on its own resources (of the sort examined in the preceding chapter). In ways that neither educators nor sociologists understand perfectly, and in which the accident of specific personalities plays some role, the various components result in a school that functions in a particular way. In this chapter we examine that functioning, in sufficient depth to see some of the similarities and differences between the way schools in the different sectors function.

The functioning of these types of schools will be examined in five areas:

1. Student coursework
2. Levels of participation in extracurricular activities
3. The standards of discipline set by the school
4. Student behavior, including involvement in schoolwork and discipline-related behavior
5. Student attitudes

The last two aspects of the functioning of these schools, behavior and attitudes on the part of students, could be treated equally well as outcomes of schooling in the next chapter. Student responses about their interest and involvement in school, the behavior that causes disciplinary problems in the school, and the attitudes they hold all play a part in the functioning of the school, but they are in part shaped by the school as well. Thus their inclusion in this chapter rather than the next is somewhat arbitrary. Because we examine these behaviors and attitudes solely descriptively, as aspects of the functioning of each type of school, the question of just how much the type of school is responsible for these differences in behavior and attitudes remains unanswered. In section 6.3 of the next chapter, we return to differences in behavior and discipline and provide some answers to this question.

5.1 Student Coursework

Chapter 4 reported the courses and programs offered in each school sector, but it showed only student access, not exposure to coursework of different kinds. This section examines what courses students say they will take or have taken. Several items in the student questionnaire provide information about this.

One question asked sophomores the number of semesters in major subject-matter areas they had taken in the 10th grade (YB006); another item asked them to report the number of semesters in these same areas they planned to take in grades 11 and 12 (YB009). A similar question asked seniors about the semesters of coursework they had taken in grades 10, 11, and 12 in the same subjects. By combining sophomores' responses to the two questions, the plans of sophomores can be compared to the actions of seniors. This is done in table 5.1.1, which shows the average number of semesters planned by sophomores and taken by seniors in grades 10, 11, and 12. These three years translate into six semesters of coursework, and the table shows two semesters for each year of coursework, four semesters for two years, and six semesters for three years. The total number of semesters taken in a subject can exceed six, however, because students can enroll in more than one course in a subject per semester.

TABLE 5.1.1

AVERAGE NUMBER OF SEMESTERS IN VARIOUS SUBJECTS, PLANNED BY SOPHOMORES AND TAKEN BY SENIORS, IN PUBLIC AND PRIVATE SCHOOLS: SPRING 1980

Subject	Major Sectors						High-Performance Schools			
	Public		Catholic		Other Private		Public		Private	
	Grade		Grade		Grade		Grade		Grade	
	10	12	10	12	10	12	10	12	10	12
Average total	23.2	24.6	25.6	26.5	24.1	25.9	27.2	27.0	25.8	27.1
Mathematics	4.0	4.0	4.9	4.9	4.5	4.7	5.1	4.9	5.6	6.0
Science	3.3	3.4	4.1	4.0	4.0	4.0	4.4	4.6	4.6	4.9
English	5.3	5.8	5.7	6.2	5.4	6.1	5.7	6.0	5.8	6.2
History	4.0	4.6	4.3	4.9	4.2	4.7	4.5	4.8	3.9	4.6
Spanish	1.0	0.9	1.9	1.8	1.3	1.4	1.7	1.6	1.3	1.8
French	0.6	0.5	1.1	1.0	1.4	1.4	1.3	1.2	2.7	2.2
German	0.2	0.2	0.2	0.2	0.3	0.4	0.5	0.4	0.5	0.4
Business	1.7	2.1	1.5	2.1	1.2	1.5	1.3	1.6	0.3	0.3
Trade, Technical	1.7	1.8	0.7	0.5	0.8	0.8	1.4	1.2	0.6	0.4
Other vocational	1.4	1.3	1.2	0.9	1.1	0.9	1.2	0.8	0.6	0.3

The table shows interesting comparisons among types of schools, among subjects, and between sophomores' plans and seniors' actions. What is perhaps most striking is the similarity of the sophomores' plans to what the seniors have actually taken. Overall, there are small differences between the two in both directions, but the only uniform increases among all sectors are in English, history, and business courses, and the only uniform decrease is in "other vocational" courses. Thus sophomores seem to know with reasonable accuracy what they will take in the next two years--assuming, of course, that the sophomores will in two years show a profile similar to that of 1980 seniors.

Not shown in the table are the variabilities in sophomore expectations and senior realizations. For the academic subjects, the variation among seniors in what they have actually taken is less than the variation among sophomores in what they think they will take. That is, while sophomores, on the average, have accurate expectations about the number of semesters of each of these academic subjects they will take, there are more extremes in the expectations of sophomores than in the actions of seniors. The reverse is true for the nonacademic subjects (business courses, trade, technical, and other vocational courses). For these courses, in the public schools (and to a lesser extent in the private schools) the seniors are more extreme in the amount of coursework they have completed than are the sophomores in their expectations. This, of course, has to do with the way high schools are structured, with academic subjects more or less standard fare for all students (though at differing levels of difficulty), and vocational courses taken primarily by those students who go into (or are directed toward) a vocational program. Some students who will never take a technical or vocational course expect to take a few such courses, while others who will end up taking many of these courses underestimate that number as sophomores.

Table 5.1.1 also allows comparison of sectors according to the average amount of coursework completed in academic and nonacademic courses. The average amount of academic coursework completed by public school seniors provides a basis for comparing students in other sectors. On the average, these students complete two years of mathematics, one and a half years of science, two and a half years of history, three years of English, and one and a half years in all foreign languages taken together. Of course, this list does not include all academic coursework, but it does sketch out the exposure of U.S. public high school students to basic academic courses.

Students in the private sector vary somewhat from this modal picture. On the average, students in Catholic schools and other private schools take three more semesters of academic coursework (the first three groups of courses in table 5.1.1) than do students in public schools. A similar difference is found between high-performance private and public schools (although students in the latter schools take slightly more academic coursework than do students in the Catholic or other private sectors). Considering each academic subject separately, the differences among the public, Catholic, and other private sectors are rather small. The students in high-performance private schools stand out sharply in mathematics and French: the average senior completes more than a semester of mathematics and of French beyond that completed by students in other sectors.

The differences between the public and private sectors are reversed for business, trade, technical, and other vocational courses.

These courses are less frequently taken by private school students, with the differences especially great for the high-performance private schools.

Among the foreign languages, German has nearly vanished as a subject studied by students in all types of schools. French is also infrequently taken in the public schools, but it remains the dominant language in the high-performance private schools, and occupies an equal position with Spanish in the non-Catholic private schools.

Altogether, the comparison of specific subjects taken in public and private schools indicates no sharp divergence between the two. Perhaps the greatest areas of divergence are foreign languages, of which the private school students take more, and nonacademic occupational courses, of which the public school students take more. Other than this, one can say only that the private school students take, on the average, slightly more courses, and that these are generally in academic subjects.

Looking at specific academic courses, such as calculus or physics, however, there are some great differences between the types of schools. Seniors were asked about each of nine academic courses: four mathematics courses, two science courses, and third-year courses in each of three foreign languages. Table 5.1.2 shows the percentage of seniors in each school type taking these courses. Within each area, the courses are ordered by the percentage of students taking each.

In mathematics courses, ranging from geometry to calculus, about half to two-thirds as many public school students take these courses as do Catholic or other private school students. Comparing Catholic schools with other private schools in each of the mathematics courses, a slightly higher percentage of Catholic school students than of other

TABLE 5.1.2

PERCENT OF SENIORS IN PUBLIC AND PRIVATE SCHOOLS REPORTING THEY HAVE COMPLETED SELECTED ACADEMIC COURSES: SPRING, 1980

Course	U.S. Total	Major Sectors			High-Performance Schools	
		Public	Catholic	Other Private	Public	Private
Geometry	56	53	84	77	87	100
Algebra 2	49	42	70	66	76	99
Trigonometry	24	22	44	42	57	70
Calculus	6	6	11	10	22	63
Chemistry	38	37	53	51	68	79
Physics	20	18	23	28	46	67
3rd Year Spanish	4	3	7	8	11	13
3rd Year French	3	2	6	10	8	2
3rd Year German	1	1	1	2		2

private school students take these courses. An exceptionally high proportion of students in high-performance private schools take these advanced mathematics courses, with 63 percent taking calculus, the most advanced. The percentages for the high-performance public schools lie between those of the private sector as a whole and those of the high-performance private schools. Generally, the more advanced the course, the smaller the ratio of public school enrollment to private school enrollment.

Neither of the two science courses, chemistry and physics, is taken by a large proportion of students, except in the high-performance schools. Chemistry is taken less often in all types of schools than algebra 2, but more often than trigonometry. Physics is taken less, only about half as often as chemistry (except in the high-performance schools). It is taken by fewer students than take trigonometry, but by more than take calculus. In these sciences, the public schools are somewhat closer to the private schools than is true for mathematics.

The third year of a foreign language is taken by only a small minority in any type of school. We have no direct comparisons with earlier cohorts or other developed countries, but both of these comparisons would undoubtedly emphasize the relative lack of advanced foreign language training among contemporary American high school students, in public and private schools. In the public schools, attended by about 90 percent of the students, the highest enrollment for a third-year language course is 3 percent, in Spanish. The percentage of students in public schools enrolled in any third year language course is 6 percent, compared with 14 percent in Catholic schools, and 20 percent in other private schools. It is not the case that the lower percentage of students taking each of these courses in the public schools is due to lack of opportunity. Table 4.1.2 in the preceding chapter showed that the percentage of private school students in schools where such a course is available is smaller than, or at most equal to, the percentage of public school students in such schools. That is, these courses are generally more available in the public sector, but are taken by fewer students.

If we look at the percentages of students in those schools where the course is available who take the course, the differences in table 5.1.2 are slightly magnified. Table 5.1.3 shows these percentages, and the differences between public and private are slightly greater. This is of course due, at least in part, to the small sizes of private schools. In such schools, the percentage of students interested in a given course must be fairly high for the absolute number to be great enough to warrant the teaching of the course. Thus in the smallest schools, the other private schools, the percentages taking a course where it is offered tend to be especially high.

The public-private school differences are, however, reduced if, in the schools where the courses are offered, we look only at those students who say they expect to get a 4-year college degree (BB065). Table 5.1.4 shows these comparisons. The course profiles in mathematics and physics in public schools are much closer to those in Catholic and other private schools. In languages, however, the differences between the other private schools on the one hand and public and Catholic schools on the other remain great.

Thus altogether, comparing coursework taken in the public and private schools, we can say that a superficial look at the number of semesters in general subjects shows a great similarity between public and private; but, when we examine specific advanced courses in these schools, a far greater percentage of private school students take these

TABLE 5.1.3

PERCENT OF SENIORS IN PUBLIC AND PRIVATE SCHOOLS WHERE SELECTED ACADEMIC COURSES ARE OFFERED WHO HAVE TAKEN THESE COURSES: SPRING 1980

Course	U.S. Total	Major Sectors			High-Performance Schools	
		Public	Catholic	Other Private	Public	Private
Geometry	57.3	54.4	84.5	79.0	86.1	99.8
Algebra 2	50.2	47.8	72.3	67.1	75.5	98.8
Trigonometry	28.0	25.5	48.1	46.8	52.5	94.2
Calculus	10.4	9.5	14.7	24.6	23.5	62.2
Chemistry	39.2	37.6	52.8	54.6	68.5	78.9
Physics	21.3	20.4	24.4	30.6	45.8	66.6
3rd Year Spanish	5.0	4.4	7.5	16.7	11.5	17.2
3rd Year French	3.8	3.1	6.4	18.9	9.5	19.5
3rd Year German	2.3	2.2	1.2	7.0	5.3	4.5

TABLE 5.1.4

PERCENT OF SENIORS IN PUBLIC AND PRIVATE SCHOOLS EXPECTING TO FINISH 4-YEAR COLLEGE WHO HAVE TAKEN SELECTED ACADEMIC COURSES WHERE THESE COURSES ARE OFFERED: SPRING 1980

Course	U.S. Total	Major Sectors			High-Performance Schools	
		Public	Catholic	Other Private	Public	Private
Geometry	82.1	80.1	94.3	90.5	94.2	99.8
Algebra 2	74.4	73.0	83.6	81.4	86.4	98.8
Trigonometry	49.6	47.3	62.9	59.5	67.1	94.5
Calculus	19.7	18.7	20.8	33.1	29.9	63.5
Chemistry	63.0	62.3	67.0	66.7	79.8	79.6
Physics	35.4	35.2	34.0	40.0	58.4	66.9
3rd Year Spanish	7.7	7.1	8.4	19.9	13.6	14.2
3rd Year French	6.6	5.6	8.7	23.4	11.6	21.1
3rd Year German	3.5	3.4	1.9	7.1	4.9	4.6

courses. If we control for students' higher education plans, these differences are reduced, and, presumably, statistical controls on family background would reduce the differences even more. Thus, while the student bodies of public and private schools as a whole differ considerably in their taking of these advanced courses, students with similar college plans (and similar in other respects) have similar course profiles. This leaves open, of course, the question whether these college plans are brought to the school wholly from the outside or are in part generated by the different school environments. We examine that question in section 6.2.

5.2 Extracurricular Activities

Along with the courses that students take in each of these types of schools, they participate in extracurricular activities. And, because the schools are organized quite differently, we might expect the extracurricular activity profiles of students to differ according to the type of school they attend. Table 5.2.1 shows the percentage of students in each sector participating in each of thirteen types of school activities listed in the student questionnaire (BB032). The activities are grouped into four loosely related areas.

First of all, it is useful to note that there are few major differences between the participation profiles of sophomores and seniors. The only major difference in the public schools is the 10 percent increase in senior participation in vocational education clubs. Among the smaller differences, however, some are consistent across sectors. Band and orchestra participation appears to decline slightly, as does participation in subject matter clubs. In contrast, participation in hobby clubs appears to increase slightly. In addition, cheerleading seems to increase

TABLE 5.2.1

PERCENT OF SOPHOMORES AND SENIORS IN PUBLIC AND PRIVATE SCHOOLS PARTICIPATING IN VARIOUS EXTRACURRICULAR ACTIVITIES: SPRING 1980

Activity	Major Sectors						High-Performance Schools			
	Public		Catholic		Other Private		Public		Private	
	Grade		Grade		Grade		Grade		Grade	
	10	12	10	12	10	12	10	12	10	12
Varsity athletics (Seniors only)	NA[a]	35	NA	37	NA	58	NA	39	NA	73
Athletics (soph) or other athletics (seniors)	53	41	62	47	69	55	20	26	84	65
Cheerleading & pepclub	14	15	16	15	13	17	17	07	11	17
Debate, drama	10	14	14	18	18	33	18	15	24	36
Chorus, dance	22	21	23	20	28	31	20	19	24	27
Band, orchestra	17	15	10	9	15	14	18	15	11	12
Subject matter clubs.	26	24	28	25	27	25	24	21	30	23
Vocational education clubs	15	25	4	7	7	9	6	8	3	0
Hobby clubs	21	23	21	22	24	27	21	26	34	43
Honorary Society ..	NA	17	NA	20	NA	17	NA	17	NA	13
School newspaper ..	NA	18	NA	28	NA	45	NA	24	NA	57
Student government .	NA	18	NA	20	NA	30	NA	19	NA	29

[a] NA = not applicable; sophomores not asked about participation.

(the athletics questions are not quite comparable at the sophomore and senior levels, and cannot be directly compared), as does participation in debate or drama. Participation in chorus or dance appears to decline slightly in the public and Catholic schools, but to increase in the other private and high-performance private schools.

Among school sectors, the public schools and the Catholic schools seem similar, and somewhat different from the other private schools. The high-performance private schools differ from public and Catholic in the same direction as all of the other private schools, but more emphatically. The principal difference between the public and Catholic schools on the one hand and the other private and high-performance private on the other is that in the latter a number of activities appear to grow over time, with seniors participating considerably more than sophomores. In the public and Catholic schools, where levels of participation are in general slightly lower at the sophomore level, this growth does not occur. The differences between school types at the senior level in the last two activities, school newspaper and student government, suggest that the same generalization would hold for these activities if they had been included at the sophomore level.

Regardless of the reason, the end result is that participation in extracurricular activities in the other private and high-performance private schools, which is similar to that in public and Catholic schools at the sophomore level, is considerably higher by the senior year. This can be seen in a slightly different way by looking at two measures of sophomore-senior differences for the seven activities that are directly comparable (3 through 9 in table 5.2.1): the number of activities in which seniors show a higher participation rate than sophomores, and the sum of senior-sophomore difference in percentage participating.

These are shown in table 5.2.2. The table shows that, by both measures, the other private and high-performance private schools are distinguishable from the other types of schools. Participation grows over time in these schools, but declines or grows less in the others.

One might conjecture that extracurricular activities are organized differently in the Catholic and public schools than in the other private schools. In particular, there are two approaches a school may take to the organization of extracurricular activities. One is a selective orientation, which recruits younger students into, say, less selective choruses, with subsequent narrowing down for the more selective chorus, or into junior varsity athletics with only the best going on to the varsity. Another approach, the intramural orientation, holds to the philosophy that everyone ought to try everything. This latter approach may be seen in elite English schools that aspire to develop a "well-rounded" individual.

If the public and Catholic schools have the selective orientation to extracurricular activities, and the other private schools more often have the intramural orientation, this would explain the participation decline from sophomore to senior in public and Catholic schools and the growth (or at least the absence of decline) in the other private schools.

5.3 Disciplinary Standards

Discipline in schools is regarded by many as the most important problem in American education. In a yearly Gallup Poll concerning education, the general public has for a number of years ranked discipline as the most important problem in schools. And superintendents, principals, and teachers complain bitterly about constraints on them, legal and

TABLE 5.2.2

DIFFERENCES IN SOPHOMORE AND SENIOR PARTICIPATION IN EXTRACURRICULAR ACTIVITIES IN PUBLIC AND PRIVATE SCHOOLS: SPRING 1980

Differences	Major Sectors			High-Performance Schools	
	Public	Catholic	Other Private	Public	Private
Sum of senior-sophomore differences	11	-1	24	-24	24
Fraction of activities in which senior participation is higher	3/7	3/7	5/7	1/7	6/7

otherwise, which they regard as preventing them from imposing and maintaining order in their schools.

Discipline is also one of the areas in which public and private schools are believed to differ most. Catholic schools in particular are frequently regarded as highly disciplined in comparison with public schools. It is of special interest, then, to see the similarities and differences in disciplinary standards and in student behavior in public schools and the private school sectors. In this section we examine disciplinary standards; in the next (section 5.4) we examine student behavior.

Several questions were asked, in the school questionnaire and the student questionnaire, about rules and enforcement of rules. Table 5.3.1 shows how the responses to two of those questions compare for the different sectors, and how the students' and administrators' responses compare.

There is not a great difference among the sectors, according to both administrators and students, in responsibility for property damage. Virtually all administrators in all sectors indicate that students are held responsible. Sophomores' responses are also similar across types of schools, although the percentage is somewhat lower in public schools. In all sectors, a substantial minority of sophomores say no such rule is enforced. The difference between administrators and students, of course, might be in interpretation of what "enforced" means: for some of the students, enforced might include finding the student who is responsible, and their responses may reflect the opinion that the student is often not found. The difference between administrators and sophomores is greatest in the public schools and least in

TABLE 5.3.1

PERCENT OF SOPHOMORES AND ADMINISTRATORS REPORTING THAT CERTAIN RULES ARE ENFORCED AT THEIR SCHOOL: SPRING 1980

Item and Group	U.S. Total	Major Sectors			High-Performance Schools	
		Public	Catholic	Other Private	Public	Private
Students responsible to school for property damage						
Sophomores	65	64	77	71	66	71
Administrators	97	96	95	100	100	100
Rules about student dress						
Sophomores	46	42	97	69	14	93
Administrators	58	51	100	70	44	90

the Catholic schools, consistent with the general perception that discipline is most fully enforced in Catholic schools and least fully enforced in public schools.

Rules about student dress distinguish the sectors sharply--and there is little disagreement between sophomores and administrators. In virtually all of the Catholic schools, about two-thirds of the other private schools, and perhaps half of the public schools there are enforced rules about student dress. Thus the greater strictness of the Catholic schools, as well as the intermediate position of the other private schools, is evident in this area.

Table 5.3.2 shows responses of seniors and sophomores to general questions about the effectiveness and the fairness of discipline in the school (BB053F and G). Among the three sectors, students in Catholic schools are the most likely to rate their school as "excellent" or "good" in effectiveness of discipline, and public school students are least likely to do so. On fairness of discipline, again the private schools are more often rated by their students as good or excellent than are the public schools; but this time the Catholic schools and the other private schools are approximately alike. It is in effectiveness of discipline, as perceived by their students, that the private schools (and especially the Catholic schools) depart most sharply from the public schools.

The two sets of high-performance schools differ sharply on both of these dimensions of discipline. The high-performance private schools are the highest of all sectors in both dimensions, while the high-performance public schools are hardly distinguishable from the public schools as a whole.

TABLE 5.3.2

PERCENT OF SOPHOMORES AND SENIORS IN PUBLIC AND PRIVATE SCHOOLS RATING THEIR SCHOOLS' EFFECTIVENESS AND FAIRNESS OF DISCIPLINE AS "EXCELLENT" OR "GOOD": SPRING 1980

Class	U.S. Total	Major Sectors			High-Performance Schools	
		Public	Catholic	Other Private	Public	Private
Effectiveness of discipline:						
Seniors	44	42	72	58	52	79
Sophomores	44	41	76	65	40	79
Fairness of discipline:						
Seniors	37	36	47	46	40	62
Sophomores	40	39	52	50	41	68

The lower rating of public schools by their students in fairness of discipline is somewhat ironic. In the past decade and a half, legal strictures to insure fairness of discipline, such as requirements for due process before suspension, elaborate review processes, and statistical comparisons of disciplinary actions by race to insure racial fairness, have been imposed by the courts or the Federal government on public schools. These strictures are much less fully imposed on private schools (in part, of course, simply because attendance at these schools is by choice rather than assignment). Yet it is the private schools, less bound by the strictures designed to insure fairness, that are more often regarded as fair by their students. This suggests that the legalistic approach to insuring fairness in discipline may be less effective than other approaches in bringing about fairness--and the upper panel of the table suggests that it may indeed be counterproductive for effectiveness of discipline. Of course, the effectiveness of discipline is also dependent on other factors. In particular, private schools have more control over the entrance and exit of their students than do public schools.

One other question somewhat related to the disciplinary climate of a school asked the students about teachers' interest in students. The responses to that question are shown in table 5.3.3. The table shows that among the three sectors it is the teachers in other private schools who are most often regarded as interested in their students. Teachers in the public schools are by far the least often seen as interested in students. Again, the high-performance private schools are highest in perceived interest of teachers, while the high-performance public schools are similar to the public schools as a whole. Here, and to a lesser degree in other aspects of discipline, the smaller average

TABLE 5.3.3

PERCENT OF SOPHOMORES AND SENIORS IN PUBLIC AND PRIVATE SCHOOLS RATING THEIR TEACHERS' INTEREST IN STUDENTS AS "EXCELLENT": SPRING 1980

Class	U.S. Total	Major Sectors			High-Performance Schools	
		Public	Catholic	Other Private	Public	Private
Seniors	14	12	25	41	15	64
Sophomores	11	9	25	34	16	55

size of the private schools (and especially the other private schools) may be responsible for some part of the differences.

Another way to examine the difference in disciplinary standards in each type of school is to aggregate the student response in each school and then compare the school averages and ranges within each sector. This procedure gives us a way to compare general school climates among sectors. Such an aggregation of responses was done for the discipline and climate items discussed previously--teacher interest in students, effectiveness of discipline, and fairness of discipline--as well as for an item on school spirit (BB053H). The responses were aggregated across both grades, and the school was characterized according to the average student response. Figure 5.3.1 shows the mean of the school rating for each sector, and an indication of the range obtained by adding and subtracting two standard deviations. (About 5 percent of schools would fall outside of two standard deviations.) Thus, one can compare both the average school climate for each sector, and the degree of similiarity for schools within each sector (the range).

Some general differences in range hold across at least three of the four measures: the very broad distributions among the other private schools, and the tight distributions of high-performance private and public schools. The breadth of the distributions for the other private schools implies that these schools differ considerably among themselves in fairness and effectiveness of discipline. For instance, although they are higher than the public schools in average perceived fairness, a few are seen as worse than nearly any public school in fairness of discipline. Teacher interest in other private schools shows a similarly broad distribution. Finally, there is high variability

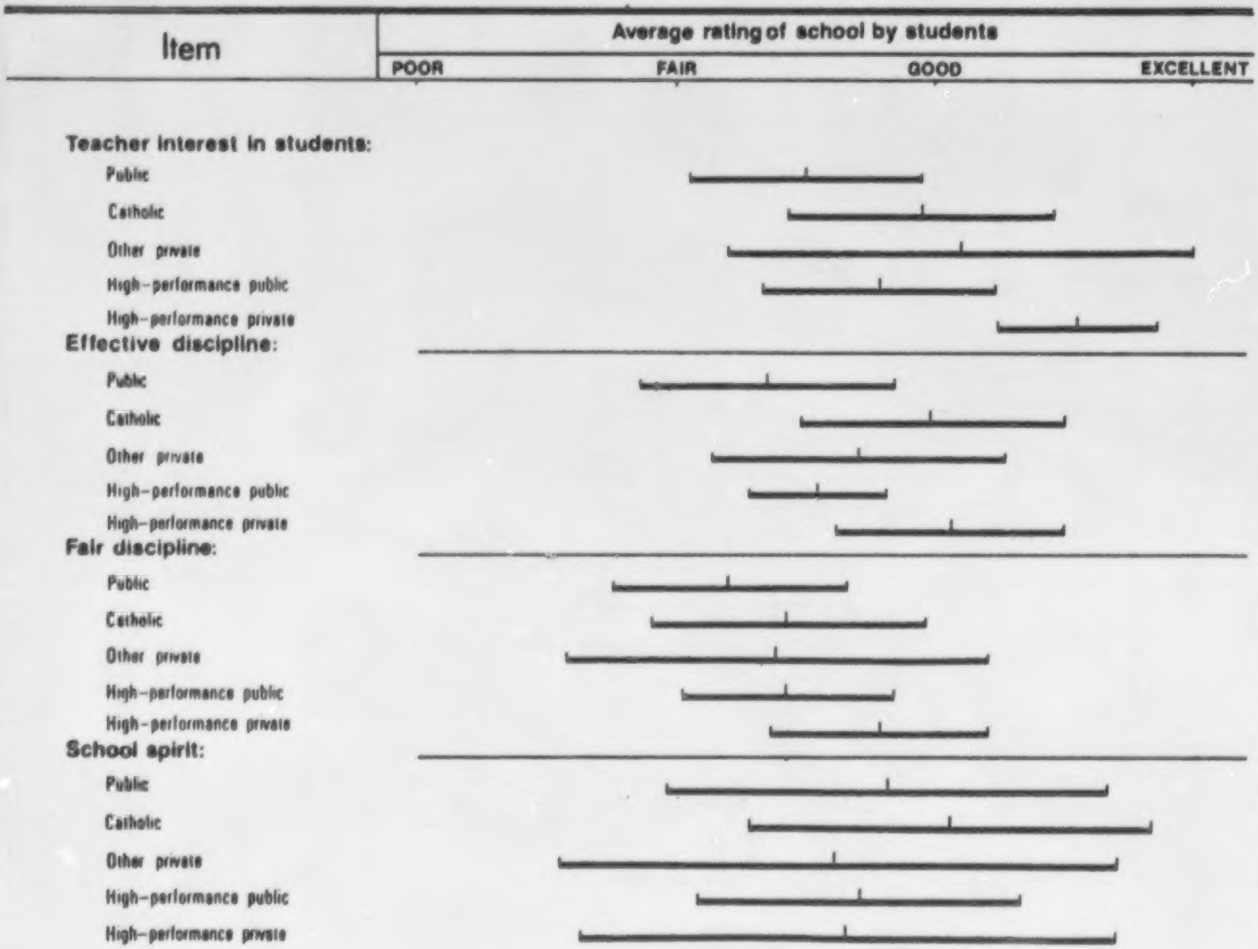

Fig. 5.3.1. School aggregate ratings of discipline, teacher interest, and school spirit by students in the public and private sectors: average and range within each school sector: Spring 1980.

in school discipline climates in other private schools, and high consistency among both public and private high-performance schools.[1]

Looking at central tendencies, which tell us about the average school within each type, the high-performance private schools are highest in teacher interest, effectiveness of discipline, and fairness of discipline, and low only in school spirit (though they show a wide range). Conversely, the public schools are lowest in teacher interest and in effective and fair discipline; in school spirit they are relatively high, exceeded only by the Catholic schools. High-performance public schools tend to be rated slightly higher on these dimensions of school environment than the public schools, except in school spirit.

Comparing Catholic and other private schools, the Catholic schools are higher in effectiveness of discipline and in school spirit, the other private schools are higher in teacher interest, and the two are about equal in fairness of discipline.

These results at the school level are consistent with the individual-level results, except that the inclusion of the range of schools within each of the sectors on measures of discipline reveals the great variation within the other private schools.

Altogether, the indicators of disciplinary standards and disciplinary climate indicate that the standard stereotypes are by and large true. The Catholic schools are strictest in discipline; the other private schools are somewhat less strict and appear to be more nurturant (as evidenced by perceived teacher interest). The public schools, taken as a whole, are neither strict nor nurturant. In addition, they are least often regarded by their students as fair in their exercise of discipline. The comparisons are not happy ones for American public schools.

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[1] Some part of the variability in all sectors is due to sampling variability, since only a sample of students in each grade level was included in the study. For most sectors, this sampling variability is small, since, if all sampled students responded, the school average is based on seventy-two student responses. But some schools, especially in the other private sector, were so small that the total of the sophomore and senior classes was considerably below seventy-two. Thus a part of the broader variability for other private schools is due to this sampling variability.

5.4 Student Behavior

In this section we compare the obverse of disciplinary standards, that is, student behavior in different sectors, including involvement in school, attendance, tardiness, and cutting classes. Student behavior is in part the consequence of the way a school is organized and administered and in part the cause. We know that students attend school with different degrees of regularity, making teaching more or less difficult; that students spend varying amounts of time on homework; and that, when in school, students exhibit differing degrees of behavior problems. The question of interest here is just how the various sectors of education compare in student behavior.

5.4.1 Involvement in school

Involvement in school is one aspect of student behavior. There are several measures of this in the student questionnaires. One is the amount of time spent on homework (BB015); a second is the true-false response to a statement that the student is interested in school (BB059C); a third is another true-false response to a statement that the student likes to work hard in school (BB061E).

The average amount of time spent on homework differs considerably among the sectors. The averages for sophomores are: less than four hours a week in the public schools; over five and one-half in Catholic schools, other private schools, and high-performance public schools; and over nine hours in the high-performance private schools. Again, the other private schools show a greater diversity than the Catholic schools, with more students at each extreme. Most homogeneous are high-performance private schools, where nearly all of the sophomores spend over three hours and almost half spend over ten hours (table 5.4.1).

Seniors spend less time on homework than do sophomores, except in the high-performance private and public schools, where slightly more time is spent, on the average. From this evidence, seniors appear slightly less involved in schoolwork than are sophomores. One other point from the table is noteworthy: In both the Catholic schools and the high-performance private schools, no sophomore, and almost no senior, reports not having homework assigned; in the public schools, 2.4 percent of sophomores and 4 percent of seniors report that none is assigned.

Although watching television is not part of school functioning, it stands as a kind of alternative time expenditure for high school students, and it is useful to see how students from the different types of schools balance their time between television and homework. Table 5.4.2 shows the amount of time spent on watching television by all students in a week, and these results can be compared to the amount of time spent on homework. Comparison of tables 5.4.1 and 5.4.2 reveals that the lesser time spent on homework by the average public school student is matched by a greater amount of time spent in watching television. Because of the different time categories used for the two items, and because of a general normative pressure to overreport time spent in homework and underreport time spent watching television, the absolute numbers of hours in the two activities cannot be directly compared.

TABLE 5.4.1

AVERAGE TIME SPENT ON HOMEWORK BY SOPHOMORES AND SENIORS IN PUBLIC AND PRIVATE SCHOOLS: SPRING 1980

Time on Homework	U.S. Total		Major Sectors						High-Performance Schools			
			Public		Catholic		Other Private		Public		Private	
	Grade		Grade						Grade			
	10	12	10	12	10	12	10	12	10	12	10	12
No homework assigned	2.3	3.6	2.4	4.0	0.0	0.6	1.7	1.0	1.3	0.7	0.0	0.0
None	4.5	4.0	4.7	4.2	2.3	2.3	2.4	3.8	2.2	2.3	0.6	1.9
Less than 1 hour/week	14.1	16.3	14.9	17.1	6.3	9.[illegible]	6.3	8.0	7.5	8.0	0.9	2.2
One to three hours	28.3	30.3	29.2	31.2	20.3	24.8	17.6	17.8	16.3	19.5	3.5	4.5
Three to five hours	24.0	21.3	24.0	21.0	24.9	25.1	22.5	22.8	23.2	22.8	12.0	6.8
Five to ten hours	20.5	18.0	19.4	17.0	32.8	27.1	29.8	27.3	36.8	27.2	35.2	29.0
More than ten	6.4	6.4	5.4	5.6	13.3	10.2	19.8	19.3	12.7	19.6	47.9	55.6
Average[a]	3.9	3.7	3.7	3.5	5.6	4.9	6.0	5.8	5.6	5.7	9.1	9.5

[a] Calculated by assigning 0.5, 2.0, 4.0, 7.5, and 12.5 to the last five categories in the table, and 0 to the first two.

TABLE 5.4.2

AVERAGE TIME SPENT WATCHING TELEVISION BY SOPHOMORES AND SENIORS
IN PUBLIC AND PRIVATE SCHOOLS: SPRING 1980

Number of hours	U.S. Total		Major Sectors						High-Performance Schools			
			Public		Catholic		Other Private		Public		Private	
	Grade		Grade						Grade			
	10	12	10	12	10	12	10	12	10	12	10	12
None	2.6	3.6	2.4	3.4	2.8	4.0	7.6	9.7	4.0	4.1	7.6	11.0
Less than one hour	6.5	10.9	6.0	10.5	8.3	11.5	17.3	18.8	11.6	17.3	24.7	25.2
One to two hours	13.2	18.0	12.9	17.7	16.4	21.2	15.6	21.6	20.3	23.6	28.2	24.7
Two to three hours	19.5	22.1	19.6	22.2	20.4	23.8	16.1	18.0	24.4	23.2	16.8	20.7
Three to four hours	18.0	17.3	18.0	17.4	18.7	17.5	18.3	13.3	14.2	15.6	9.7	8.2
Four to five hours	12.8	11.0	13.0	11.3	12.3	9.1	8.3	7.1	8.7	6.8	4.3	3.3
Five or more hours	27.4	17.1	28.1	17.6	21.3	13.0	18.8	11.4	18.8	9.5	8.6	7.0
Mean[a]	4.1	3.3	4.2	3.4	3.7	3.0	3.2	2.6	3.2	2.6	2.2	2.0

[a] Calculated by assigning 0.5, 1.5, 2.5, 3.5, 4.5, and 8.0 to the last six categories, and 0 to the first two.

But the direction of the differences among the sectors is exactly reversed for television watching and for homework. The public school students are lowest in homework, highest in television watching; the students in high-performance private schools are highest in homework, lowest in television. These two time expenditure reports suggest the differing levels of demands imposed on students in the different types of schools.

In addition to comparisons by school type, comparison of seniors and sophomores is of interest. Seniors watch less television, than sophomores and are also less occupied by homework. A greater amount of their attention than that of sophomores is devoted to activities other than either schoolwork or television. Another report from this study (Lewin-Epstein 1981), shows that a major area of activity for many youth is employment.

Student reports of interest in school and liking to work hard in school give another perspective on the capacity of these schools as constituted to capture the attention of their students (see table 5.4.3). These items, however, show considerably fewer differences among students by sector than does the item concerning time spent on homework. It is true that fewer of the students in public schools and more of the students in high-performance private schools report being interested, but the differences between the public and private schools as a whole are very small. The same can be said for responses to the question about liking to work hard: there are only small differences among the schools, and the public schools are not consistently the lowest.

In general, for both of these questions, the seniors show, as already suggested by their spending less time on homework, slightly less interest in school than do the sophomores. Thus, again, there

TABLE 5.4.3

PERCENTAGE DISTRIBUTIONS IN PUBLIC AND PRIVATE SCHOOLS OF STUDENTS INTERESTED IN SCHOOL AND OF STUDENTS LIKING TO WORK HARD IN SCHOOL: SPRING 1980

Item	U.S. Total		Major Sectors						High-Performance Schools			
			Public		Catholic		Other Private		Public		Private	
	Grade		Grade						Grade			
	10	12	10	12	10	12	10	12	10	12	10	12
Interested in school?												
Yes	76.4	73.7	76.2	73.2	78.7	76.3	78.1	82.1	80.9	76.1	88.4	88.7
No	23.6	26.3	23.8	26.8	21.3	23.7	21.9	12.9	19.1	23.9	12.6	11.3
Like working hard in school?												
Yes	54.0	52.3	54.0	52.2	52.8	52.3	56.4	54.2	53.8	57.8	63.6	56.7
No	46.0	47.7	46.0	47.8	47.2	47.7	43.6	45.8	46.2	42.2	36.4	43.3

is indication that in all sectors the interest and involvement of seniors in high school is somewhat lower than that of sophomores.

5.4.2 School attendance

Another area of student behavior is attendance. We look at three potential problems in this area: absence from school for reasons other than illness, class cutting, and tardiness. Student behavior along these lines differs according to type of school. Table 5.4.4 shows that the school sectors are ordered alike for all of these types of behavior and for both seniors and sophomores: students in Catholic schools show the highest consistency of attendance, students in other private schools are next, and students in public schools are lowest. Curiously, students in high-performance public schools have the poorest attendance records.

This table includes, in addition, evidence that seniors are less well disciplined in attendance than are sophomores. In all types of schools, and by all three measures, seniors show less consistency in their attendance at school than do sophomores. This is especially noteworthy because the seniors are a more select group, excluding those students--on the whole, less well disciplined--who have dropped out between the sophomore and senior years. Thus there is further indication that seniors are less involved in high school than are sophomores.

5.4.3 Reports about discipline from administrators and students

In addition to these reports by students concerning their own behavior, there is information about the school's behavioral climate from two other sources: the school questionnaire included questions (SB056), answered by the school's administrative staff, about the seriousness of various types of behavioral problems among students; and

TABLE 5.4.4

PERCENT OF SOPHOMORES AND SENIORS IN PUBLIC AND PRIVATE SCHOOLS REPORTING GOOD ATTENDANCE PRACTICES: SPRING 1980

Attendance Item	U.S. Total		Major Sectors						High-Performance Schools			
			Public		Catholic		Other Private		Public		Private	
	Grade		Grade						Grade			
	10	12	10	12	10	12	10	12	10	12	10	12
Never absent except when ill	34.7	25.6	33.7	24.8	48.8	34.0	37.0	30.8	32.2	19.4	50.3	34.5
Never cut classes	69.9	55.2	68.6	53.6	88.7	74.6	71.0	59.3	56.8	41.6	81.4	64.4
Never late to school	42.2	36.0	42.0	35.9	47.7	41.2	35.6	28.2	33.5	32.8	40.3	28.0

sophomores were asked (YB019) about how often certain behavior problems, in some of the same areas as well as some others, arise in the school. Responses to these questions offer two additional perspectives on the school's behavioral climate. In two of the areas, student absenteeism and class cutting, it is possible to examine the same behavior from three perspectives: the students' reports of their own behavior, the school administrators' reports about what happens in the school, and the students' reports about what happens in the school. In another area, verbal abuse of teachers, it is possible to get two perspectives: reports from the administrative staff and from the students about what happens in the school.

Table 5.4.5 presents the administrators' and the sophomores' responses concerning behavioral problems, some covering the same areas of behavior. Comparing the two areas in which there are three perspectives, we find some interesting differences. First, two of the three perspectives show Catholic schools to have the best attendance and public schools to have the worst. But the perspectives differ: students' reports of their own behavior show less difference among school types than do administrators' and sophomores' reports about the school. There is a logical basis for the difference between students' reports of their own behavior and reports on a "school problem." If 5 percent of students are chronically absent in one school and 15 percent are absent in another, it is logically consistent for no one in the first school to report that this "often happens" or is a "serious problem," and for all students and administrators in the second school to report that it often happens or is a serious problem. Thus such reports on a school can logically show greater extremes than the actual behavioral averages.

TABLE 5.4.5

ASSESSMENTS OF DISCIPLINARY PROBLEMS BY ADMINISTRATORS AND STUDENTS IN PUBLIC AND PRIVATE SCHOOLS: SPRING 1980

Item and Group	U.S. Total	Major Sectors			High-Performance Schools	
		Public	Catholic	Other Private	Public	Private
Student absenteeism:						
Administrators: percent reporting it is a "serious or moderate problem"	47.2	56.6	15.2	13.8	58.1	00.0
Sophomores: percent reporting "students often don't attend school"	42.9	46.2	8.1	16.1	28.2	2.8
Sophomore and senior behavior: absent 5 or more days, not ill	19.0	20.2	8.5	13.5	14.2	7.9
Cutting classes:						
Administrators: percent reporting it is a "serious or moderate problem"	29.1	37.0	4.6	00.0	39.2	00.0
Sophomores: percent reporting "students often cut classes" ...	58.4	62.4	15.9	25.9	67.0	6.5
Sophomore and senior behavior: cut classes now and then	36.8	39.0	18.4	34.3	50.7	26.7
Verbal abuse of teachers:						
Administrators: percent reporting or is a "serious or moderate problem"	8.6	9.6	4.7	5.3	22.6	00.0
Sophomores: percent reporting "students often talk back to teachers"	39.8	41.6	22.8	21.7	25.7	9.2

TABLE 5.4.5 (Continued)

Item and Group	U.S. Total	Major Sectors			High-Performance Schools	
		Public	Catholic	Other Private	Public	Private
Fighting and disobedience:						
Sophomores: percent reporting "students often fight"	25.1	26.8	9.4	5.8	14.7	2.5
Sophomores: percent reporting "students often don't obey"	28.7	30.2	14.6	13.0	18.8	4.6
Drug and alcohol use:						
Administrators: percent reporting it is a "serious or moderate problem"	42.3	48.5	26.2	18.0	61.3	60.0
Vandalism of school property:						
Administrators: percent reporting it is a "serious or moderate problem"	21.8	24.5	13.8	11.7	27.1	20.0

Table 5.4.5 also includes data on areas of behavior not related to attendance; these have to do with disorderly and disobedient behavior while in school, and in some cases directed toward the school. The difference between public and private schools stands out just as strongly here as in attendance. The incidence of problems of all sorts is high in public schools, however reported and by whomever reported. There is, however, a reversal between the two sectors of private schools. In most of these areas of behavior--specifically verbal abuse of teachers, fighting, drug and alcohol use, and vandalism--Catholic schools show slightly higher rates of incidence than do other private schools. The students' reports and the administrators' reports are reasonably consistent in this (except that administrators report much lower levels of verbal abuse of teachers than do sophomores, suggesting that the responses of the two may be referring to somewhat different behavior--"verbal abuse" vs. "talking back"). In absenteeism and cutting classes, as indicated earlier, the other private schools are higher than the Catholic schools. It seems likely that the reason for the somewhat poorer attendance in the other private schools is that these schools are somewhat less strict about enforcement of attendance or disciplinary action for nonattendance than are Catholic schools. This conjecture is reinforced by the fact that while absenteeism and cutting classes, as reported by students of themselves and of other students, are more prevalent in other private schools than in Catholic schools, the principals less often define this as a "problem."

As indicated by earlier data, the high-performance public schools resemble the public schools as a whole more than they resemble any of the private sectors, while the high-performance private schools tend to show fewer disciplinary problems than either the Catholic or other private schools.

In one area of behavior, however, administrators in both sets of high-performance schools more often report a behavior problem than do administrators in any other sector: use of alcohol or drugs. Administrators in three-fifths of the high-performance schools report a "serious" or "moderate" problem. In the absence of further information (students were not asked about alcohol or drug use), we can merely note this.

It is possible not only to characterize each of the sectors by the distribution of student behavior, but also to characterize each school according to the level of discipline problems students see in the school. In addition to the items concerning attendance, cutting classes, and verbal abuse, sophomores were asked about three areas of student behavior problems in their school: not obeying, getting in fights, and threatening or harming teachers. For each school, the students' responses to these six items were averaged, so that the school is characterized by the level of discipline problems as perceived by all sophomores.

As in the analysis of disciplinary standards, where a similar aggregation was done for each sector, the results are tabulated as the mean and the range. (That is, plus and minus two standard deviations. In some cases, this exceeds the upper limits of 3.0 or goes below the lower limit of 1.0, but this can still serve as a measure of the range of schools. On the graph, the ranges are truncated at the limits.) About 5 percent of schools lie outside of a range of two standard deviations.

The results are shown in figure 5.4.1. Several general results hold over all areas of student behavior. Again, the high-performance private schools show a tight distribution, just as they did earlier, in the case of disciplinary standards. And, again, the other private

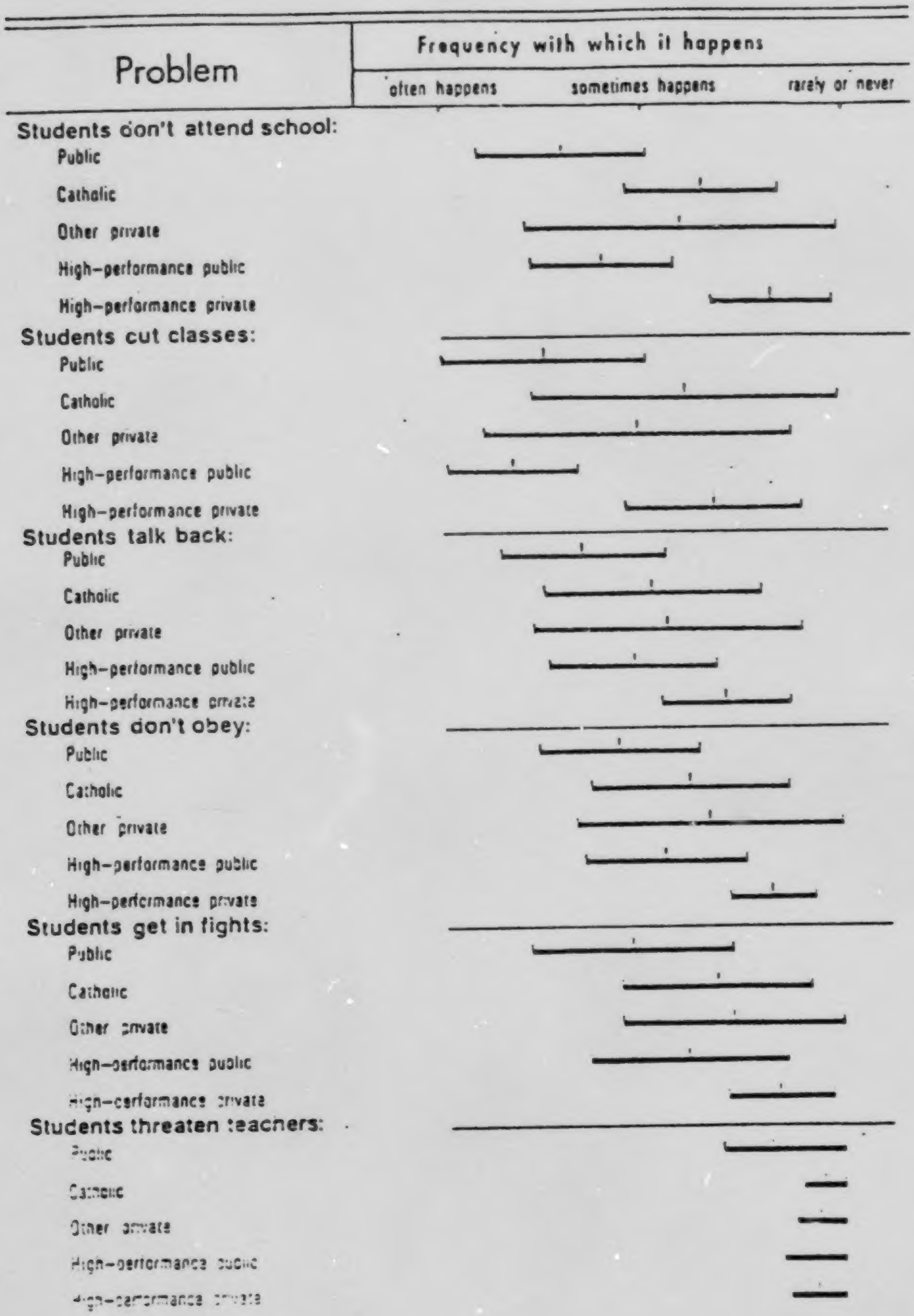

Fig. 5.4.1. School aggregate assessment of discipline problems by sophomore students in public and private schools: average and range within each school sector: Spring 1980

schools show the largest range in most areas, though in the area of threatening or attacking teachers it is only the public schools that show a range.

In all areas of behavior, without exception, the public schools have greater student behavior problems than schools in any other sector. In some areas, such as attendance, cutting classes, fighting, and threatening teachers, the average public school is outside the whole range of Catholic schools in the direction of more behavior problems (that is, at a point beyond which we would find less than 2.5 percent of the Catholic schools). The difference between the schools in these two sectors in student behavior problems is clearly very great. The difference between public schools and other private schools is also great. In every area except cutting classes and threatening teachers, the average for other private schools is beyond the range of public schools in the direction of fewer behavior problems (i.e., at a point beyond which we would find less than 2.5 percent of the public schools).

These characterizations of behavior problems in the schools show extremely great differences between the public schools and the private schools. In sum, although the distributions of schools do overlap, in some areas the majority of public schools are beyond the limits of the distribution of private schools.

5.5 Students' Attitudes

Students' attitudes toward themselves and their environments were elicited in the student questionnaire (BB058A through L). Several questions related to what is ordinarily termed "self-concept"--just how good one feels about oneself--were asked, using a five-point agree/disagree scale. Another set of questions, using the same scale, tapped what is ordinarily termed "internal control" or "fate control," that is, the degree to which one feels in control of those things one regards as important.

Through these questions it is possible to see how students in each type of school feel about themselves. Information about such feelings or attitudes gives a sense of the psychic state of a school's student body, and thus add to our sense of just how the schools function as social systems.

The proportion of students within each sector expressing a strong sense of fate control is shown in table 5.5.1. Six items intended to elicit these feelings are listed there. The differences among sectors are not large, but they are consistent. For nearly all items, public school students are lowest, Catholic school students are next, students in other private schools and high-performance public schools are only slightly higher, and students in high-performance private schools are somewhat higher than the rest. Averages are shown at the bottom of the table, indicating the differences. As these figures show, seniors in all types of schools have a somewhat higher belief in their control of their own fates than do sophomores, with the magnitude of the differences being about equal to that between the public and private school students at the same grade level. However, the seniors in other private and high-performance private schools exceed the sophomores in their sense of fate control somewhat more than is true in the other sectors.

A variety of experiences, both within the school and outside it, give some people more self-confidence about themselves than others. Academic achievement and leadership experience are two of the in-school

TABLE 5.5.1

PERCENT OF SOPHOMORES AND SENIORS IN PUBLIC AND PRIVATE SCHOOLS
EXPRESSING A STRONG SENSE OF FATE CONTROL: SPRING 1980

Fate Items	U.S. Total		Major Sectors						High-Performance Schools			
			Public		Catholic		Other Private		Public		Private	
	Grade		Grade						Grade			
	10	12	10	12	10	12	10	12	10	12	10	12
Good luck important (Disagree strongly)	24.8	32.4	24.4	32.0	29.9	35.6	27.4	36.8	26.6	38.8	33.2	38.2
Someone stops me (Disagree strongly)	9.6	13.8	9.3	13.4	12.6	15.8	11.3	20.1	15.5	22.5	16.4	31.8
Plans don't work out (Disagree strongly)	22.6	27.9	22.3	27.5	25.6	29.6	24.3	34.7	26.2	36.8	37.7	43.2
Should accept conditions (Disagree strongly)	9.9	16.2	9.6	15.7	12.2	19.8	12.8	23.1	14.2	21.0	22.6	33.1
What happens in my doing (Agree strongly)	19.3	22.6	19.4	22.6	18.7	21.7	17.7	24.7	19.7	18.6	16.9	32.8
My plans work out (Agree strongly)	13.6	16.5	13.7	16.5	12.4	15.7	12.5	18.8	15.5	14.9	14.4	23.4
Average	16.6	21.6	16.5	21.3	18.6	23.0	17.7	26.4	19.6	25.4	23.5	33.8

experiences that can foster the growth of self-esteem. Table 5.5.2 shows the variation in high self-esteem responses for students in various types of schools. Again, senior responses indicate higher self-esteem than do those of sophomores regardless of sector. Generally, the magnitude of the differences is approximately the same for Catholic and both types of public schools. The senior-sophomore difference is greater in the other private and high-performance private schools, as it is for fate control. Although it is beyond the scope of the present study, future researchers might want to focus attention on those characteristics in which these two sectors especially exceed the other sectors: teacher interest (table 5.3.3), involvement in extracurricular activities (table 5.2.2), and number of teachers relative to students (table 4.2.1). These factors, as well as school size, may play a role in the greater change between the sophomore and senior years in these schools.

Finally, we look at student concern for social and economic inequalities. Students were asked about the importance of a variety of factors in their lives, and "working to correct social and economic inequalities" was among the items. We report only the responses of non-Hispanic whites for two reasons. First, because we are interested in capturing a concern for the social welfare of others, we wished to look at the responses of those who are less often the victims of inequality. Second, because minority students are disproportionately represented in the public sector, their inclusion would have distorted the between-sector comparison. Table 5.5.3 shows that among the three major sectors there are only slight differences in the proportion of non-Hispanic white students who consider it "very important" to work toward correcting

TABLE 5.5.2

PERCENT OF SOPHOMORES AND SENIORS IN PUBLIC AND PRIVATE SCHOOLS GIVING HIGH SELF-ESTEEM RESPONSES: SPRING 1980

Self-Esteem Item	U.S. Total		Major Sectors						High-Performance Schools			
			Public		Catholic		Other Private		Public		Private	
	Grade		Grade						Grade			
	10	12	10	12	10	12	10	12	10	12	10	12
Take positive attitude toward myself (Agree strongly)	26.9	32.7	26.9	32.7	26.4	30.9	26.7	33.5	24.8	35.2	35.4	46.0
I'm a person of worth (Agree strongly)	26.9	33.5	26.6	33.1	29.5	36.1	29.7	38.6	35.4	36.8	41.1	55.0
Able to do things as well as others (Agree strongly)	26.7	33.6	26.5	33.5	28.3	33.3	31.2	37.4	29.0	35.2	41.0	52.4
On the whole, satisfied with myself (Agree strongly)	18.9	22.6	18.9	22.4	19.2	22.8	20.0	25.8	21.2	24.7	25.6	32.7
I'm not good at all (Disagree strongly)	11.0	14.4	11.0	14.3	10.4	14.0	10.0	15.2	7.9	13.1	13.6	20.7
Not much to be proud of (Disagree strongly)	32.6	39.9	32.3	39.4	35.5	43.9	35.0	43.9	37.8	43.6	43.9	58.7
Average	23.8	29.5	23.7	29.2	24.9	30.2	25.4	32.4	26.0	31.4	33.4	44.3

TABLE 5.5.3

PERCENTAGE DISTRIBUTION BY GRADE AND SCHOOL TYPE OF THE PERCEIVED IMPORTANCE AMONG WHITE STUDENTS OF WORKING TO CORRECT SOCIAL AND ECONOMIC INEQUALITIES: SPRING 1980

Perceived Importance	U.S. Total		Public		Catholic		Other Private		High-Performance Sector			
									Public		Private	
	10	12	10	12	10	12	10	12	10	12	10	12
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Very important	12.0	11.1	12.1	11.1	11.5	9.8	11.1	13.2	15.0	12.6	13.6	15.0
Somewhat importnat	49.6	46.5	49.6	46.8	49.3	46.0	52.1	40.5	47.3	44.9	46.0	38.2
Not important	38.4	42.4	38.4	42.1	39.2	44.2	36.8	46.3	37.7	42.5	40.4	46.8

NOTE: Details may not add to totals because of rounding.

social and economic inequalities, and in all cases the proportion is relatively small (between 9 and 13 percent). Among sophomores, public school students are slightly more concerned than students in the private sector. In both the Catholic and public sectors the proportion of seniors who consider working to correct inequalities "very important" is slightly lower than that of sophomores, while more other private seniors than sophomores consider it "very important." All of these differences, however, are quite small. Perhaps more important is the fact that for all sectors more seniors than sophomores consider this issue "not important." However, the increase in the private sector appears to be greatest, especially in the other private sector. Overall, the data suggest that among non-Hispanic white students there may be less loss of concern for social and economic inequalities in the public sector than in the private sector between the sophomore and senior years.

5.6 Conclusion

It should be said that the majority of high school students appear to enjoy working hard in school and report that they are interested in school--regardless of the type of school they attend. Also, student exposure to coursework does not differ greatly by type of school. But schools in the different sectors appear to differ sharply in some respects: the number of advanced courses students take, the number of extracurricular activities in which students participate, the discipline standards established for students, and the general behavior patterns of students.

Catholic schools are distinguished from others in the relatively tight disciplinary standards established, their reported effectiveness, and the high attendance patterns of their students. Furthermore, the reports of students in Catholic schools concerning discipline tend to accord better with principals' reports than do those of students in other types of schools. In terms of extracurricular involvement, Catholic school students appear to have experiences comparable to those of public school students.

In all of the private sectors, students take more academic subjects, and more advanced academic subjects, than students in the public sector (except for the high-performance public schools). Other private schools, as well as high-performance private schools, are distinguished by the growth in participation in extracurricular activities between the sophomore and senior years. The standards of discipline in other private schools are similar to those in the Catholic schools, though somewhat less strict, and the climate appears to involve closer teacher-student relations than in either Catholic or public schools.

Public schools, in general, are distinguished by their discipline problems, the lower average number of academic courses completed by their students, and the lower number of hours spent on homework. However, for public school students planning to complete four years of college, exposure to advanced science courses is not much below that of students in the private schools, though these students take substantially fewer advanced mathematics courses than do students in private schools.

Students in high-performance public schools are more likely to complete advanced mathematics courses than students in other private or Catholic schools, but are less likely to do so than students in high-performance private schools. Students in high-performance public schools also spend about the same amount of time on homework as do students in Catholic and other private schools. But students in high-performance public schools are distinguished by their consistently higher rate of absenteeism and class cutting. In other areas of discipline they are fairly comparable to other private and Catholic schools.

The types and amounts of courses completed, as well as the disciplinary climate, appear, then, to be important differences in the functioning of these schools. In the next chapter we discuss how these schools differ in outcomes for their students.

CHAPTER 6

OUTCOMES OF EDUCATION

A central question in any consideration of policy concerning public and private schools is the outcomes of these differing forms of schooling for the children who pass through them. There is not, however, a single question: there are two dominant ones, as well as several subsidiary questions. The two dominant questions are "What are the outcomes from public and private schools as they currently function?" and "What would be the different outcomes of public and private schooling for the same boy or girl going through the two different kinds of schools?" The first is useful for purely descriptive purposes, to see just what the products of public and private schools in the U.S. are like, how they are alike and how they differ. It is the second, however, that is more central for parents, and central to policy arguments about the relative merits of public and private schools.

The first of the questions is simple and straightforward, and can be answered directly, by comparing seniors in public and private schools on various measures: test scores, post-high-school plans, interest in school, adherence to discipline, effort expended on schoolwork, attitudes toward oneself and others, and so on. Some of these measures, which show differences in the way the schools function, were examined in chapter 5; others, which are purely outcomes of schooling, are examined here.

The second question is more difficult: it requires an experiment that can never be exactly carried out, but is approximated every day. What would be the difference in outcome for a given boy or girl in the different school settings? It is impossible to have the same person in two different schools, but in everyday life we observe something like this--a brother goes to a public school, while his sister goes to a private school; or two boys who have grown up as neighbors and friends are sent, one to a private school and the other to a public school.

In answering the second of these questions with data of the sort contained in High School and Beyond, statistical controls are used as substitutes for the ideal but unattainable experiment. The quality of the answer to the question depends on the statistical controls that are used. In attempting to answer the question, we will use a kind of triangulation, obtaining evidence through different types of analyses in order to get a more secure fix on the results.

Yet whatever the statistical controls, and despite the differing kinds of analysis, some measure of uncertainty must remain. When the sophomores are retested two years hence, the existence of measures at two points in time will help remove some of the uncertainty; but even then, uncertainty will remain. This, however, is the situation with all questions of cause and effect; and, as in the use of evidence in everyday life, our task will be to use the evidence at hand to cast as much light on the causal questions as possible.

In addition to these two major questions, there are subsidiary questions as well: What would be the outcome differences between public and private schools if some input resource other than students were the same? For example, how would public and private schools differ in outcomes if they were, on average, the same size, or if the per-pupil expenditures in each were the same? Some of these hypothetical questions are relevant to policy issues, because some policies would equalize these schools on certain resource inputs. For example, a voucher plan, such as that which has been proposed in California, would nearly equalize per-pupil expenditures among public and private schools in the state.[1]

Like the questions about outcomes for students who are alike, these questions about outcomes when various input resources or characteristics are made alike can be answered only with uncertainty. But the answers are valuable, not only for policy purposes, but also because they give some insight into the sources of any different effects that public and private schools have on the students who attend them. Thus, they offer ideas about what policies may be valuable, both in public schools and in private schools, to increase the school's effectiveness for their students.

6.1 Descriptive Differences in Outcomes Between Public and Private Schools

From one point of view, the products of a school are its graduates, and we should thus look only at seniors to discover the differences in these products. From another point of view, however, the school's products are its students at every stage of their schooling, so that it is reasonable to view the performance, behavior, and attitudes of sophomores as the school's products as well. We take the second view, looking at these attributes of sophomores as well as seniors.

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[1] This plan has been developed by John Coons, Professor of Law at the University of California, Berkeley. There was an initial attempt, later withdrawn, to put the voucher proposal on the California ballot for referendum.

Some of these descriptive differences in outcomes, that is, certain behavior of students in schools and certain attitudes about self and school, have been examined in the preceding chapter, and will not be reexamined here. In this chapter we focus on two outcomes: scores on standardized tests and plans beyond high school.

6.1.1 Cognitive achievement in each sector

Tests were given to sophomores and seniors in each of the schools studied. The tests differed somewhat for sophomores and seniors, but three of the tests had a number of items in common. The vocabulary tests had eight words in common, the reading tests had eight questions in common, and the mathematics tests had eighteen items in common. The results are given separately for the sophomore tests (in table 6.1.1), for the senior tests (in table 6.1.2), and for the common subtests taken by both seniors and sophomores (in table 6.1.3).

The sophomore test scores in table 6.1.1 show that the average student in public schools scores below the average student in either the Catholic or other private schools in every area tested. Students from Catholic schools and from other private schools have similar averages, and the high-performance schools, both private and public, show averages above those of students in the other sectors. The high-performance private schools, more selective and more homogeneous, show averages considerably above those for the high-performance public schools. These differences in average test scores and in standard deviations illustrate again the differences between the two sets of high-performance schools. The high-performance public schools are generally large upper-middle-class suburban schools with student bodies that perform well above those

TABLE 6.1.1

MEANS AND STANDARD DEVIATIONS FOR SOPHOMORE TEST SCORES IN PUBLIC AND PRIVATE SCHOOLS: SPRING 1980

Test	U.S. Total	Major Sectors			High-Performance Schools	
		Public	Catholic	Other Private	Public	Private
Means:						
Reading (19)[a]	9.1	8.9	10.5	10.5	11.7	14.5
Vocabulary (21)	10.9	10.7	12.9	13.1	14.1	17.6
Mathematics (38)	18.6	18.3	21.5	22.3	24.9	30.2
Science (20)	10.9	10.8	11.9	12.4	13.2	15.1
Civics (10)	5.8	5.8	6.5	6.4	7.1	7.8
Writing (17)	10.3	10.1	11.9	11.5	12.8	14.7
Standard deviations:						
Reading	3.9	3.8	3.6	3.9	4.1	2.8
Vocabulary	4.4	4.3	3.9	4.5	4.2	2.6
Mathematics	7.4	7.4	6.6	7.8	7.5	4.8
Science	3.8	3.8	3.3	3.5	3.5	2.4
Civics	2.0	2.0	1.9	1.9	1.9	1.4
Writing	4.0	4.0	3.5	3.8	3.4	2.0

[a] Numbers in parentheses refer to total number of test items.

TABLE 6.1.2

MEANS AND STANDARD DEVIATIONS FOR SENIOR TEST SCORES IN PUBLIC AND PRIVATE SCHOOLS: SPRING 1980

Test	U.S. Total	Major Sectors			High-Performance Schools	
		Public	Catholic	Other Private	Public	Private
Means:						
Reading (20)[a]	10.9	10.8	11.9	13.0	13.5	16.0
Vocabulary (27)	13.1	12.9	15.1	15.9	18.0	21.6
Mathematics (32)	19.1	18.9	21.1	22.4	23.9	28.1
Picture number (15)	11.3	11.3	12.1	11.9	11.6	13.0
Mosaic (89)	45.3	45.2	47.3	51.0	54.2	55.3
Visual (16)	7.7	7.7	7.5	8.6	8.8	9.8
Standard deviations:						
Reading	4.2	4.2	3.8	4.2	4.0	2.6
Vocabulary	5.4	5.3	5.1	6.0	5.7	3.7
Mathematics	6.3	6.3	5.6	6.1	5.7	2.7
Picture number	3.7	3.7	3.3	3.5	3.5	2.8
Mosaic	14.6	14.6	12.6	14.7	16.0	14.5
Visual	3.1	3.1	3.0	3.2	3.2	3.3

[a] Numbers in parentheses refer to total number of test items.

TABLE 6.1.3

MEAN SCORES ON SUBTESTS THAT ARE IDENTICAL FOR SENIORS AND SOPHOMORES IN PUBLIC AND PRIVATE SCHOOLS: SPRING 1980

Subtest	U.S. Total		Major Sectors						High Performance Schools			
			Public		Catholic		Other Private		Public		Private	
	Grade		Grade						Grade			
	10	12	10	12	10	12	10	12	10	12	10	12
Means:												
Reading .... (8)[a]..	3.7	4.5	3.6	4.5	4.3	5.0	4.3	5.3	4.9	5.8	6.1	6.7
Vocabulary ...... (8) ..	3.8	4.6	3.7	4.5	4.6	5.4	4.7	5.6	5.1	6.2	6.7	7.2
Mathematics .....(18) ..	9.6	10.8	9.4	10.6	11.0	12.1	11.3	12.7	12.5	13.8	15.1	16.4

[a] Numbers in parentheses refer to total number of items on subtests.

of the average public school, yet they contain much more diversity in performance than the high-performance private schools, as comparison of the standard deviations shows.

There are some subject-matter variations between the sectors. The Catholic schools are about half a standard deviation above the public schools in vocabulary (using the U.S. total standard deviation), a little less than half above in reading, mathematics, and writing (English composition), and about a third above in civics and science. The other private schools are slightly higher than the Catholic schools in mathematics and science, slightly lower in civics and writing.

It is also useful to look at the standard deviations of the test scores in each of the school types. The standard deviations can be thought of as test score variations consisting of two parts: the variation among students within a school, and the variation among schools within the same school sector. These standard deviations show that the most variable performance is not found for all tests, as one might expect, in the public schools. Rather, for reading, vocabulary, and mathematics, the central core of basic cognitive skills, the most variable performance is found in the sector labelled "other private" in the table. This high variability expresses the extreme heterogeneity among these other private schools. They include the prestigious schools that are often thought of as the private schools in America, schools that roughly coincide with membership in the National Association of Independent Schools. But they also include a wide range of church-related schools, as shown in chapter 2, some of which operate on a shoestring; and they include as well schools that have sprung up in response to school desegregation policies and other unpopular policies in the public schools. These schools vary, too, in the kinds of students served. Some children are in private schools because their parents feel the local public school offers too little challenge. But others are marginal students, in private schools because they have done poorly in public school. Some private schools cater to low achievers, others to high. Altogether, the large variations in test scores in the "other private" category of schools indicates the wide range of levels at which these schools operate and the wide range of functions they serve for different types of students.

Test scores in the Catholic schools show less variation than either those in the public schools or those in the other private schools, as one might expect. Students in these schools come from backgrounds that are more homogeneous in education and income level than those of students in either the public schools or the other private schools.[1] In addition, the schools themselves are more homogeneous, all operating under the same church, and with some common practices.

The schools that show the least variation in test scores among their students are the high-performance private schools. Because they are within the prestigious segment of the private schools they, too, draw students from rather homogeneous backgrounds. In addition, they were selected for inclusion in this study on the basis of their similarity in performance on a standardized test, the National Merit Scholarship Test. Thus, on both these grounds, they can be expected to show, as they do, considerably lower variation in test score performance by their students.

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[1] Table 3.3.1 shows the lesser variation in income among parents of children in Catholic schools than among parents of children in other schools.

In contrast, the high-performance public schools show about the same diversity of performance as do the public schools as a whole, though the average level of performance ranges from about two-thirds a standard deviation to nearly a full standard deviation above that in the public schools as a whole.

The senior test scores show a pattern similar to those for the sophomore tests. Again, the public schools are lower than the Catholic and other private schools, with only one exception among the twelve comparisons between public schools and the two private school sectors on the six tests. The other private schools are slightly higher than the Catholic schools on five of the six tests. The high-performance public schools are (except for the picture number test) higher than the other private schools, and the high-performance private schools are in turn considerably above the high-performance public schools.

It is tempting to compare the senior and sophomore test scores for the three tests with comparable content (vocabulary, reading, mathematics), to make some inference from the scores of the two cohorts about "gains" or "growth" in achievement. However, there are difficulties in doing this. One principal difficulty is the fact that the tests are not the same at the two grade levels. A second difficulty is that the students in the two grades cannot be considered as representative samples of the same population, largely because of dropouts between the sophomore and senior years.

The first of these difficulties can be overcome by examining subtests consisting of the items that are identical in the two years.

Scores these subtests are presented in table 6.1.3. The table shows the same differences between school sectors seen in tables 5.1.1 and 5.1.2. The public school students' averages are lowest, Catholic school students are somewhat higher, and the other private schools are highest among the three major sectors. Students in the high-performance public schools are somewhat higher still, and the students in high-performance private schools are considerably higher than all.

When we look at differences between grades 10 and 12, with the aim of inferring something about growth in achievement over the two years, the first striking point is that the growth seems rather small everywhere. Out of eight questions on reading comprehension, the average sophomore answers about four correctly, and the senior answers, on the average, less than one additional question correctly. Similarly, for the eight vocabulary items, the average sophomore answers about half correctly, while the average senior has learned less than one more. In mathematics, of the eighteen problems, the average sophomore answers only a little more than half, and the average senior only a little over one additional item.

The differences between sophomores and seniors, which could, with some caveats, be regarded as growth, seem very much the same among the different sectors, except for the high-performance private schools, in which the growth is less in vocabulary and reading. This result for the high-performance private schools is almost certainly due to a ceiling effect. The average number correct among sophomores was only 1.9 less than the number of questions in reading and 1.3 less in vocabulary. This means that many sophomore students had all items correct: 16 percent of the sophomores in these schools had all items in the reading test correct, and 35 percent had all items in the vocabulary test correct. These students' scores could not be improved on by their senior counterparts. The only gains could come in that fraction of the student body with less-than-perfect scores, and, even then, the opportunity for gain was small, since only one or two items were missed. For other schools these data show no strikingly different degree of growth from the sophomore to the senior year.

It might be argued that the lack of growth from the sophomore to the senior year can be explained by the fact that these tests do not cover subject matter that is an explicit part of the curriculum in the later years of high school. The mathematics items are all rather elementary, involving basic arithmetic operations, fractions, and only a few hints of algebra and geometry. Explicit attention to reading comprehension and to vocabulary expansion is not part of standard curricula in the tenth through twelfth grades. Thus we would not expect the variation in intensity and scope of the academic courses taken during these years--as examined in chapter 5--to have a direct impact on the variations in the sophomore to senior test score gains. Two or three of the tests given to sophomores (science, civics, writing composition skills) should reflect such curriculum variations when they are repeated for the sophomores two years hence.[1] Yet the academic courses that are taken in grades 10, 11, and 12 should provide the kind of practice and experience that would lead to somewhat greater growth than the one item per test that is found. Among the students in the high-performance private schools, who already at grade 10 are not far from the ceiling of all items correct in the tests, the low amount of growth might be expected, since there is not much room for gain, and among students who have all items correct at grade 10 no gain can occur at all. But in public and private schools generally only a small portion of sophomores get all items correct, and there is great room for learning. There, the small rates of growth are rather surprising.

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[1] These tests were not given to seniors because there was a replication for seniors of the tests given to 1972 seniors, thus allowing 1972 to 1980 comparisons.

There are difficulties in inferring differential growth in different school sectors (or, as appears to be the case, lack of differential growth) on the basis of these comparisons. First, there may have been differential growth, but differences which occurred before grade 10, and were responsible for the observed differences at grade 10. That is, the spring of grade 10 is not the entry point into high school for these students, and thus differences between grades 10 and 12 capture only part of the growth that occurs during the students' high school careers.

Second, these are two different cohorts, and differential dropout in different sectors may result in the seniors being a differently-selected group than the sophomores in the different sectors. (We return to the question of differential dropout later in this chapter.)

Third, quite apart from different dropout rates, the two cohorts are samples from the population of sophomores and seniors in each type of school, and normal sampling variation, particularly in the private sectors, where the samples are not large, can lead to differences.

Fourth, it may be that average growth rates obscure differences in growth among different segments of the student population. For example, it could be, because of the great diversity among the other private schools, that there is high growth among some (e.g., the prestigious "independent" schools) and low growth among others. These differences would be masked by the overall 10-to-12 comparisons made in table 6.1.3.

An attempt is made, in section 6.2, to examine the question of differential growth. At this point, all that can be said is that there are differences at grade 10, which are certainly due in part to differential selection of students into different types of schools, and that similar differences are found at grade 12.

6.1.2 Post-high-school plans in each sector

Several questions were asked of sophomores and seniors about their plans after high school. One of these (BB065) asked only about schooling, with the question, "As things stand now, how far in school do you think you will get?" Students in the different sectors were considerably different in their responses to this question. Table 6.1.4 shows the results.

For sophomores, the mode was less than four years of college for public school students and college graduate for Catholic and other private school students. For both the public and private high-performance schools, it was an M.A. or Ph.D. Almost 30 percent of public school sophomores expected not to go beyond high school, while 12.4 percent was the next highest percentage, among the students in other private schools. Altogether, the distributions of sophomore schooling expectations were very similar in the Catholic and other private schools.

Seniors in all sectors except Catholic schools show higher educational expectations than sophomores. The differences are not large for public school students, but are rather large for students in other private schools, and in the high-performance private schools. In both these sectors, the seniors show about 10 percent more saying they expect to get an M.A. or Ph.D.

The immediacy and concreteness of college plans are shown by responses to another question (BB115), which asks when, if ever, the student plans to attend college (either 2-year or 4-year). Responses to this question are shown in table 6.1.5. As in the expectations about ultimate level of schooling, there are differences the immediacy of college plans, differences in which the sectors are ordered in the same way as before.

Public school sophomores show the greatest percentage deferring college or undecided, nearly 40 percent taken altogether, while the Catholic and other private schools both show percentages in the 20-to-30 range in these uncertain categories, and, at the other extreme, only about 5 percent of the sophomores from high-performance private schools show this uncertainty.

In every sector, the seniors show a higher percentage planning to go immediately to college, with the differences greatest by far in the public schools. But there is also, in every sector, an increase in the percentage who are definitely not going to college. The number who say they plan to defer college decreases in all sectors, and the number who say they don't know decreases even more sharply. Thus post-high-school plans, whether for college or for something else, have crystallized considerably by the senior year among students in all school sectors. The percentage of seniors who still don't know, or

TABLE 6.1.4

PERCENTAGE DISTRIBUTIONS OF EXPECTED EDUCATIONAL ATTAINMENTS FOR SOPHOMORES AND SENIORS IN PUBLIC AND PRIVATE SCHOOLS: SPRING 1980

Expected Level	U.S. Total		Major Sectors						High-Performance Schools			
			Public		Catholic		Other Private		Public		Private	
	Grade		Grade						Grade			
	10	12	10	12	10	12	10	12	10	12	10	12
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
High school or less	26.5	19.8	28.2	21.1	9.8	8.2	12.4	8.9	8.6	4.6	1.0	1.0
More than high school but less than 4-year college.	33.0	34.6	33.5	35.6	27.2	27.3	27.3	22.1	19.0	16.1	1.3	0.6
4-year college	22.7	25.4	21.6	24.4	33.2	36.2	32.2	30.7	30.5	30.6	32.3	22.8
M.A. or Ph.D.	17.8	20.1	16.6	18.8	29.8	28.2	28.2	38.3	41.9	48.7	65.4	75.6

NOTE: Details may not add to totals because of rounding.

TABLE 6.1.5

PERCENTAGE DISTRIBUTIONS FOR TIME OF ENTRY TO COLLEGE FOR SOPHOMORES AND SENIORS IN PUBLIC AND PRIVATE SCHOOLS: SPRING 1980

	U.S. Total		Major Sectors						High-Performance Schools			
			Public		Catholic		Other Private		Public		Private	
	Grade		Grade						Grade			
	10	12	10	12	10	12	10	12	10	12	10	12
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
In the year after high school	48.5	59.3	41.8	57.4	71.2	77.0	64.9	73.2	74.8	84.6	94.7	95.1
Later	15.8	10.6	16.2	11.0	10.8	6.9	13.7	8.0	16.2	6.5	3.6	3.0
Don't know	21.2	10.5	22.1	10.8	13.0	7.1	14.1	8.4	5.2	2.7	1.5	0.6
No	14.5	19.6	15.4	20.8	5.1	9.0	7.4	10.4	3.8	6.1	0.4	1.4

NOTE: Details may not add to totals because of rounding.

plan to defer college, remains greatest in the public schools, as it was for the sophomores, but the crystallization appears to have been greatest in the public schools.

Plans for higher education constitute one type of post-high school-plan; another is plans for a job. We can ask, for those seniors who are planning to work in the year after high school, just how concrete their plans are: Do they have a job before they finish school? Table 6.1.6 shows responses to this question (EB073) among seniors from the different types of schools.

Here it is the public school seniors whose plans are most fully implemented. Of those who plan to work full time after high school, a higher percentage in the public schools already have a job lined up. The sectors are ordered in approximately the reverse of their order with respect to concreteness of college plans. Just as college plans are less concrete and less fully implemented among public school seniors who expect to attend college than among their counterparts in private schools, job plans are less concrete and less fully implemented among those private school seniors who do plan to go to work after they finish high school. This suggests that, the private schools--perhaps because most do not have vocational programs, perhaps because of less tangible factors--do less in aiding the job placement of their graduates who are not going on to college than do the public schools.

6.2 Effects of Private Schools on Outcomes of Schooling

It is evident from the preceding section that students in different sectors differ in their achievement on standardized tests and in their post-high-school plans. What is not clear is whether going to a public school, a Catholic school, or another type of private school makes a

TABLE 6.1.6

PERCENTAGE DISTRIBUTIONS OF JOB PLANS FOR THOSE SENIORS IN PUBLIC AND PRIVATE SCHOOLS WHO PLAN TO WORK FULL TIME NEXT YEAR: SPRING 1980

	U.S. Total	Major Sectors			High-Performance Schools	
		Public	Catholic	Other Private	Public	Private
Total:						
Number	1,776,998	1,648,034	84,193	44,580	13,164	191
Percent	100.0	100.0	100.0	100.0	100.0	100.0
Yes	53.5	53.9	50.1	45.1	50.3	30.0
No, but looked	22.0	22.0	24.4	17.0	18.6	18.9
No, looking yet	24.4	24.0	25.4	37.8	31.1	51.0

NOTE: Details may not add to totals because of rounding.

difference in either of these outcomes. For not only did seniors in these different sectors differ in test performance and in plans for further education; sophomores did as well. Thus the differences may well be due merely to the differential selection of different students into the different sectors. In this section we will try to answer that fundamental question: Are the differences entirely due to selection, or are there also different effects on basic cognitive skills and on plans for further education? That is, what would be the differences in outcome if the students coming into the different sectors were alike? This is a central question both for policies that affect the fortunes of public and private schools and for parental decisions about where to send children to school.

There are two classical methods of answering this question with data from ongoing (i.e., nonexperimental) schools. Both have some defects. One method is to use multivariate analysis to apply statistical controls in the form of background characteristics. It is hoped that by comparing outcomes for students with the same parents' education, the same income, the same parental interest in the child's education, and so on, the students in different schools will be "equated" in terms of their backgrounds, and any differences found in outcomes can then be attributed to something about the school. The other method is to measure the outcome variable early in the student's school career and again later. Differential change in the outcome variable is then attributed to something about the school. This method in effect uses the students' own prior responses as a control for the later ones, using the prior responses to control for differential selection into different schools.

The principal defect of the first of these methods is that it is seldom possible to control on all relevant background characteristics. Thus the possibility always remains that the differences attributed to differences in schools are instead due to some unmeasured aspect of the student's background. This defect is particularly telling here, for one known difference between parents of children in public schools and parents of children in private schools is that the latter have chosen their child's school and are paying sizable amounts of tuition money to implement this choice. It seems probable that this behavior is an indicator of additional differences in the parents' behavior toward the child's education, differences that could well affect the very outcomes that are of interest. Yet this difference between parents, by its very nature, is not something on which students in public and private schools can be equated.[1] Thus this approach is a particularly defective one in comparing public and private schools.

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[1] It is possible that some analysis could be carried out comparing aggregate outcomes in geographic areas where private schools are widely available with outcomes in those areas where private schools are largely unavailable. If there is an effect of private schools, then the overall achievement in the former areas, after statistically controlling on family background characteristics, should be different from that in the latter areas. If s is the average outcome score for public schools, standardized for family background, and $s + c$ is the average standardized score for students in private schools (where c, either positive or negative, is the private school effect), then c can be estimated as follows: If p_1 is the proportion of students in private school in area 1, and p_2 is the proportion in area w, the overall student average in area 1 should be $(1-p_1)\,s + p_1\,(s + c)$, or $s + p_1c$. In area 2, the average should be $(1-p_2)\,s + p_2(s+c)$, or $s + p_2c$. The difference between these averages is $(p_1 - p_2)\,c$. Thus if there are areas in which p_1 and p_2 are considerably different, it is possible to estimate c, the private school effect, by this method. The method assumes, of course, that s, the background-standardized outcome score, is the same in both areas, an assumption that may not be true. Because of the necessity of this assumption, and because p_i is rather small in all areas i (see table 2.1.2), we have not used this method here.

The second approach, use of the same student's earlier response on the same outcome variable, is free from some of the defects of the first approach, but it has some defects of its own. For example, it may be that the rate of change in an outcome variable such as achievement is different among students at different levels of performance, even if they are subject to the same school environment. If this is the case, then differential changes in schools that had students who were initially different can mistakenly be inferred to be due to effects of the school.

But the virtues and defects of this second method of discovering effects of different types of school are irrelevant to the present inquiry because the data do not include prior measures of these outcome variables on the same students. For the sophomores, such analysis will be possible two years hence, when they are seniors, but not at present.

The fact that measures of the outcome variable are available for sophomores and seniors in the same schools does, however, give some additional ways of obtaining evidence about possible differential effects of the different types of schools. In the remaining parts of this chapter, we attempt to use several methods to determine whether there are differential effects. The greatest attention is paid to cognitive achievement as an outcome of schooling. This is followed by a shorter examination of plans for higher education as a second type of outcome. Throughout this section we examine only the three major sectors, leaving aside the two high-performance sectors.[1]

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[1] The two high-performance sectors present several problems of different importance in different parts of this chapter. One is the small number of schools and students in these sectors: 12 schools, 311 seniors, and 370 sophomores in the high-performance public schools and 11 schools, 326 seniors, and 353 sophomores in the high-performance private schools. A second is the fact that, especially in the private schools, the average number of items correct among sophomores is close to the upper limit.

6.2.1 Effects on cognitive achievement

It is possible to regress the outcome variable, in this case score on an achievement test, on type of school, while controlling on family background characteristics--the first method described above for finding differential effects. The apparent effect of the school sector will be an estimate of the effect, but will be contaminated by whatever differences in selection are not controlled for by the background variables. Table 6.2.1 shows, for sophomore scores on the reading test, the vocabulary test, and the mathematics test, the estimated addition to sophomore scores that is due to being in a Catholic or other private school rather than a public school--for students with the same measured background characteristics.[1]

In order to minimize the effects of differences in initial selection masquerading as effects of differences in the sectors themselves, a large number of background differences were used, measuring both objective and subjective differences in the home. Some of these subjective differences may not be prior to the student's achievement, but may in part be consequences of it, so that there may be an overcompensation for background differences. It was felt desirable to do this so as

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[1] The background characteristics used as controls are described in the text below. The regression analyses on which these two tables are based are separate regressions for each school sector at each grade level. This was done, rather than use of a single regression equation with dummy variables for sectors, to allow for different effects of background characteristics in different sectors. The estimated increment at the sophomore level due to each of the two private sectors is obtained by first calculating the predicted test score in each sector for a student with background characteristics standardized to that of the average public school sophomore, and then finding the difference between the private sector and the public sector. Regression equations used in this table and in table 6.2.2 are given in appendix tables A.4.1 and A.4.2.

TABLE 6.2.1

ESTIMATED INCREMENTS TO TEST SCORES IN PUBLIC AND PRIVATE SCHOOLS WITH FAMILY BACKGROUND CONTROLLED: SPRING, 1980[a]

	Reading	Vocabulary	Mathematics
Expected level	3.60	3.69	9.40
Increments (at sophomore level) for:			
Catholic schools	0.31	0.36	0.57
Other private schools	0.14	0.33	0.54
Senior increment in public schools	0.71	0.63	0.87
Raw increments (from Table 5.1.3)			
Increments (at sophomore level) for:			
Catholic schools	0.7	0.9	1.6
Other private schools	0.7	1.1	1.9
Senior increment in public schools	0.9	0.8	1.2

[a] Family background refers to seventeen subjective and objective background characteristics which are listed, along with the relevant regression coefficients and sector means, in appendix A, tables A.5.1, A.5.2 and A.6.

to compensate for possible unmeasured differences in family background; but of course the result may be to artificially depress the resulting levels of background-controlled achievement in Catholic and other private schools. (A few additional background variables were initially included; those that showed no effects beyond the ones listed below were eliminated from the analysis.)

The background characteristics used in the analysis include the following, classified as clearly prior to (that is, unaffected by) the student's achievement level, and not clearly prior to the student's achievement level.

Clearly prior
- Family income
- Mother's education
- Father's education
- Race
- Hispanic-non-Hispanic
- Number of siblings
- Number of rooms in the home
- Both parents present
- Mother's working before child was in elementary school
- Mother's working when child was in elementary school

Not clearly prior (in rough order of likelihood of being prior)
- Encyclopedia in home
- More than fifty books in home
- Typewriter in home
- Owns pocket calculator
- Frequency of talking with mother or father about personal experiences
- Mother thinks student should go to college after high school
- Father thinks student should go to college after high school

These variables were used to account for student achievement in twelve regression equations: public sophomores, public seniors, private sophomores, and private seniors for each of the three areas of achievement.[1] Then, in order to control or standardize on student background, the expected achievement for a student with the average background characteristics of the public school sophomore students was calculated for each grade level within each of the three sectors (public school seniors, for Catholic and other private sophomores, and for Catholic and other private seniors). These expected achievement levels can then be compared to find the difference between sectors and between grades, having standarized for family background. The results of all of this are given in table 6.2.1.

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[1] The total variance explained by these background factors in each of these equations is listed in appendix A, table A.5. In the private school regressions, dummy variables were used for other private and high-performance private schools. The latter, however, are not included in the results discussed in this section.

The increments for each type of private schools are positive, showing that students of the same background characteristics have generally higher achievement in both of these types of private schools than in the public schools. However, the differences are reduced compared to the raw differences from table 6.1.3 (shown in the lower half of table 6.2.1), because of the statistical control of family background. They are slightly higher for Catholic schools than for other private schools. Thus, in general, with these background characteristics controlled, Catholic school sophomores perform at the highest level, sophomores in other private schools next, and sophomores in the public schools lowest.

The fourth line of the table shows that, controlling for family background, the estimated sophomore-to-senior growth rates are below those shown in table 6.1.3, less than one item for reading, vocabulary, and mathematics. The fact that the estimates are all slightly lower than what would be estimated from table 6.1.3 (shown in the lower half of the table) indicates that family backgrounds of seniors are slightly higher than those of sophomores, a difference that is attributable to greater dropout rates between grades 10 ands 12 for students from lower backgrounds. Thus the estimated growth from sophomore to senior, which appears low in table 6.1.3, is even less than what appears there.

A second way to attempt to examine differential growth in public and private schools is suggested by table 6.1.3, comparing sophomores and seniors in each sector on identical subtests. That table compares raw scores, uncontrolled for family background differences; it is possible to do something like this, but controlling on family background differences. In effect, this is an extension of table 6.2.1, with increments calculated at the senior level for each of the private sectors, and then comparing the senior-level increments to the sophomore-level increments shown in table 6.2.1. Senior-level increments that are larger than sophomore-level increments indicate greater sophomore-to-senior growth in the private sector, smaller increments indicate greater growth in the public sector.

The excess of sophomore-to-senior increments in both private sectors beyond the increment (shown in table 6.2.1) in the public sector is shown in table 6.2.2. The table shows, overall, little or no evidence of extra growth in the Catholic schools beyond that in the public schools, but consistent extra growth in the other private schools. The amount of extra growth in the other private schools averages about a quarter of the sophomore-senior growth in the public schools (0.27 + 0.18 + 0.15 from table 6.2.2 divided by 0.71 + 0.63 + 0.87 from table 6.2.1).

Thus for a student body standardized to the public-school-sophomore average in family background, the expected achievement of sophomores is highest in Catholic schools, next in other private schools. As for sophomore-to-senior growth, there is evidence of about 25 percent more growth in the other private schools than in either the Catholic or public schools.

TABLE 6.2.2

ESTIMATED SOPHOMORE-TO-SENIOR ACHIEVEMENT GROWTH IN CATHOLIC AND OTHER PRIVATE SCHOOLS BEYOND THAT IN PUBLIC SCHOOLS FOR STUDENT WITH AVERAGE BACKGROUND[a]: SPRING 1980

	Reading	Vocabulary	Mathematics
Catholic	-0.08	0.18	-0.01
Other private	0.27	0.18	0.15

[a] Estimates are obtained from separate regressions for sophomores and seniors in each sector, obtaining predicted achievement in each sector and grade standardized to mean public school sophomore background characteristics for 17 objective and subjective characteristics. "Extra growth" is obtained by comparing these standardized achievements between grades and then across sectors. Regression coefficients are given in tables A.5.1 and A.5.2 in appendix A.

However, both of these results must be regarded with caution. The background controls may either overcompensate for or not wholly eliminate the selectivity bias leading to higher scores among private sector sophomores and if selectivity affects growth rates as well as levels, they may either overcompensate for or not wholly eliminate selectivity bias in higher private school growth rates.

Working in the opposite direction for the sophomore-senior comparison is a different selectivity bias, due to dropouts. As will be evident later in this section, the dropout rate is considerably greater in the public schools than in either private sector. Since dropouts score lower in standardized tests than those who continue to graduation, this means that a part of the apparent sophomore-to-senior growth--and a larger part in the public sector--is spurious, due to the absence of low achievers who have dropped out before reaching the senior year.

Later, we attempt to find a practical way around both of these difficulties. At present, however, it is possible to examine another question related to differential achievement in different sectors, but examining performance of students from different backgrounds.

6.2.1.1 Different effects for students from different backgrounds:

We can examine the difference in expected achievement levels of sophomores in each sector that are considerably above the national average in parental education and those that are considerably below the national average in parental education, keeping the same mix of certain three background factors as found in the national average; we can do a similar examination for seniors. The results of such a comparison will show how well each of these school sectors functions for students from different family backgrounds.

In calculating the difference in expected levels of achievement of students in each sector for parents with extreme educational levels, we will assume first students whose parents are both high school graduates only, and then students whose parents are both college graduates. Similarly, for the public and Catholic sectors we can examine the difference in expected achievement levels of blacks and whites at both grade levels, controlling on parental income, education, and (Hispanic) ethnicity. And we can examine, in these two sectors, the difference in expected achievement levels of non-Hispanics and Hispanics, with the same background controls.[1] Thus, we are asking what is the difference in achievement that occurs for students with contrasting background characteristics within each of the school sectors. In carrying out this analysis, we chose to examine separately Catholic and other private schools, because of evidence that students from differing family backgrounds fare differently in these two sectors. Consequently, it was necessary to reduce the number of background characteristics that were controlled, in order to obtain stable estimates. We believe that this does not affect the inferences drawn in this section. The background characteristics used (beside mother's education and father's education) are family income, race, and Hispanic/non-Hispanic ethnicity.

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[1] These comparisons are carried out using the same type of analysis as in tables 6.2.1 and 6.2.2, but with fewer background variables, as described in the text. Regression coefficients are given in appendix A. For the black-white and Hispanic-non-Hispanic comparisons, the regression

Table 6.2.3 shows the results of calculating these expected achievement differences. The first and most striking result is the greater homogeneity of achievement of students with different parental education levels in Catholic schools than in public schools. Second is the greater difference in achievement among students with different parental education levels in the other private schools than in the public schools. That is, the performance of children from parents with differing educational levels is more similar in Catholic schools than in public schools (as well as being, in general, higher), while the performance of children of parents with differing educational backgrounds is less similar in other private schools than in public schools (as well as being, in general, higher).

Thus we have the paradoxical result that the Catholic schools come closer to the American ideal of the "common school," educating all alike, than do the public schools. Furthermore, as the lower panels

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coefficients themselves are used, since black and Hispanic were dummy variables in the equation. For parental education, the difference is calculated as the sum of regression coefficients for parental education, multiplied by 5 (=7-2). The black-white and Hispanic-non-Hispanic differences are not shown for other private schools, because the numbers of blacks and Hispanics in the sample of these schools is small enough to makes estimates unstable.

TABLE 6.2.3

ESTIMATED DIFFERENCE AT GRADES 10 AND 12 BETWEEN ACHIEVEMENT OF STUDENTS WITH PARENTS OF DIFFERENT EDUCATIONAL LEVELS, DIFFERENT RACE, AND DIFFERENT ETHNICITY

Comparison Category	Reading		Vocabulary		Mathematics	
	Grade		Grade		Grade	
	10	12	10	12	10	12
College vs. High School Parents						
Public	1.1	1.0	1.2	1.2	2.3	2.4
Catholic	0.7	0.5	0.8	0.7	1.1	1.4
Other private	1.3	1.4	1.5	1.5	2.7	3.3
White vs. Black						
Public	1.2	1.3	1.1	1.3	2.7	2.9
Catholic	0.6	0.6	1.0	0.8	2.0	1.7
Anglo vs. Hispanic						
Public	0.8	1.2	0.7	0.9	1.8	2.2
Catholic	0.5	0.4	0.5	0.5	1.5	1.2

of table 6.2.3 show, a similar result holds for race and ethnicity. The achievement of blacks is closer to that of whites, and the achievement of Hispanics is closer to that of non-Hispanics in Catholic schools than in public schools.

There remain two possible interpretations of this result, which we will not pursue here, but which it is important to examine in further analysis. One is that within the same school there is greater diversity in performance between children of different family backgrounds in public and other private schools than in Catholic schools. The other is that the greater diversity performance arises through a greater diversity of schools: in some schools, composed primarily of students from higher socioeconomic backgrounds, performance is high, higher than would be predicted on the basis of comparable students' performance in more heterogeneous schools; in other schools, composed primarily of students from lower socioeconomic backgrounds, performance is lower than would be predicted on the basis of comparable students' performance in heterogeneous schools.

There may be some difference between public and other private schools in this, for public high schools are large on the average (758), while other private schools are quite small (215). That is, it may be that in the other private schools a considerably greater fraction of the diversity in achievement is between schools than is true in the public schools. It is possible with the data from the present study to examine these alternative hypotheses; however, that work must remain for further analyses of this data.

There is another important aspect of table 6.2.3. This is the comparison of achievement differences among students from different backgrounds at the sophomore and senior levels in different sectors. In general, these differences are smaller at the senior level in the Catholic schools, while they are greater at the senior level in the public and other private schools. Among nine comparisons at the senior level, six are smaller, two are equal, and one is greater in the Catholic schools; one is smaller, one is equal, and seven are greater in the public schools; and one is equal and two are greater in the other private schools.

Thus, not only is the achievement more alike among students from different backgrounds in the Catholic schools than in the other sectors, it becomes increasingly alike from the sophomore to the senior year. In the public and other private schools, the achievement of students from different backgrounds diverges.

6.2.1.2 Taking dropouts into account

To this point we have not explicitly considered the effect of dropouts on the inferences about growth from sophomore to senior year in each of the sectors. The problem, of course, is that dropouts, or any other form of loss or gain from the sophomore to senior year, means that the sophomores and seniors in the sample represent somewhat different populations. If there is sophomore-to-senior dropout, and dropouts are lower-achieving, then the seniors represent a higher-achieving segment of the total cohort of all youth at their age level than the sophomores do of their cohort at their age level. This leads to an overestimate of growth rates (e.g., from table 6.1.3, or table 6.2.1) and an underestimate of the increase in divergence of scores of students from different backgrounds (table 6.2.3). And the greater the dropout rate, the greater these over- and underestimates.

This makes it especially important to estimate the dropout rates in the three sectors. Our estimate is obtained as follows. In each school, we know the total size of the senior roster and the total size of the sophomore roster. The difference between them is due to several factors, including the sizes of the total cohort in these two years, as well as the dropout rate between sophomore and senior years. All factors except the last are relatively minor, we may regard this difference as an estimate of the number of dropouts who are no longer present in the senior class.

Table 6.2.4 shows the total number of sophomores and seniors in the sampled schools in each sector, as well as the fraction this represents of the sophomore class and the fraction it represents of the senior class. The table shows that, according to this estimate, about 24 percent of the sophomore class in public schools is gone by the senior year, or a 24 percent dropout rate. The comparable rates in Catholic and other private schools are 12 percent and 13 percent respectively.

The 24 percent dropout rate in public schools represents 31 percent of the senior class. This means that only about 69 percent of the students who should be compared with sophomores to get a measure of achievement growth have been included in the public school data--and that the missing 31 percent came primarily from the lower part of the distribution. Similar statements, though for smaller fractions of the class (13 to 15 percent), could be made about Catholic and other private schools.

Some part of the bias this introduces into measures of growth has been taken care of by controlling on family background, as was done for tables 6.2.1, 6.2.2, and 6.2.3. But because dropping out of school is an act of negative selection, the students who drop out are very likely lower achieving than those from similar backgrounds who remain in school.

If we knew how the test scores of the dropouts would have been distributed, it would be possible to calculate the "true" growth rate in each sector. That, of course, is not possible. But whatever that distribution is (and assuming it is the same in each sector relative to the sector distribution), the downward adjustment to obtain the true

TABLE 6.2.4

TOTAL ROSTERS OF SOPHOMORES AND SENIORS IN SAMPLED SCHOOLS FOR ESTIMATING DROPOUTS BETWEEN SOPHOMORE AND SENIOR YEARS: SPRING 1980

Item	Public	Catholic	Other Private
Number of sophomores in sampled schools	369,942	16,030	2,009
Number of seniors in sampled schools	282,084	14,181	1,746
Difference	87,858	1,849	263
Proportion of sophomore class	.24	.12	.13
Proportion of senior class	.31	.13	.15

growth rate is much greater in the public sector than in either of the private sectors. It appears, then, that if this downward adjustment were made, not only would the growth rate in the other private sector exceed that in the public sector (as shown in table 6.2.2), but also the growth rate in the Catholic sector would exceed that in the public sector.

The size of the dropout rate in the public sector, as well as the much smaller dropout rates in both private sectors, suggests that if appropriate adjustments could be made the growth rates in both private sectors would exceed that in the public sector.

An approximation of that adjustment can be made by reinserting the dropout into the senior test score distribution, making some assumption about the distribution of scores among dropouts. We have done that, by assuming that the dropouts came from the lower 50 percent of the test score distribution on each test and were distributed in that lower half in the same way that remaining seniors in the lower half of the distribution are distributed. What this means in effect is that within the lower half of the senior test score distribution, and within the upper half, the distributions do not change; but the lower half, augmented by the dropouts, becomes a larger share of the total.

This assumption probably errs on the side of being favorable to those schools with high proportions of dropouts (in this case, the public schools), because dropouts are probably concentrated more toward the bottom of the distribution than is assumed. Thus the assumption is probably conservative with respect to the inference at hand: that is, the greater achievement growth of students in the private sector.

This assumption leads to modified senior test scores, giving the senior scores and estimated senior-sophomore gains shown in panel (a) of table 6.2.5, the upper half. The estimated gain is reduced most in the public schools, because dropout is over twice as high as in either private sector. In all three tests, the estimated gain in other private schools is greater than that in public schools, and in two of the three tests it is higher in Catholic than public schools--despite the fact that both private sectors begin with more items correct among sophomores, and are thus closer to the ceiling.

A learning rate that is not affected by the existence of a ceiling can be calculated in each sector with these models. If p is the probability of not knowing an item at a given time, and q is the learning rate expressed as the probability per unit time of learning what remains to be learned, then the equation for learning is $dp/dt = -qp$. Solving for q, the learning rate, in terms of p_o (the

TABLE 6.2.5

ESTIMATED SOPHOMORE-SENIOR GAINS IN TEST SCORES AND LEARNING RATES, WITH CORRECTIONS FOR DROPOUTS MISSING FROM SENIOR DISTRIBUTION

Item	Public			Catholic			Other Private		
	10	12	Est. Gain	10	12	Est. Gain	10	12	Est. Gain
a) Estimated gains[a]									
Reading	3.57	4.05	0.47	4.33	4.81	0.47	4.30	5.11	0.81
Vocabulary	3.68	4.09	0.41	4.58	5.19	0.61	4.73	5.35	0.62
Mathematics	9.39	9.77	0.38	11.04	11.73	0.68	11.28	12.26	0.98
b) Estimated learning rate[b]									
Reading		.06			.07			.12	
Vocabulary		-.05			.10			.10	
Mathematics		.02			.05			.08	

[a] Numbers are rounded to two decimals independently so that some rounded "estimated gains" differ from the difference between rounded sophomore and senior scores.

[b] Learning rate refers to estimated proportion of items learned in a given year from those items not known.

probability of not knowing an item as a sophomore) and p_1 (the probability of not knowing it as a senior), gives $q = -t^{-1}\log(1 - (p_o - p_1)/p_o)$. Estimates of p_o and p_1 are given by subtracting the numbers of items correct as sophomores and seniors (see table 6.2.5) from the total number of items, and dividing by the total number of items. The time difference is 2 years, so $t = 2$. Using the equation for q, learning rates can be calculated from panel (a) of table 6.2.5. These rates are given in panel (b) of table 6.2.5, the lower half.

The estimated learning rates show great differences between students in other private schools and those in public schools. Differences exist, but are smaller, between students in Catholic and public schools. The calculations suggest that the growth rate in achievement does differ among sectors, being highest in the other private sector, next in the Catholic sector, and lowest in the public sector. It is true that various assumptions are necessary, as discussed earlier, to estimate such rates. But if the assumptions are favorable to any sector it is probably the public sector. The evidence is thus rather strong that average achievement growth is considerably greater in the private sectors than it is in the public sector.[1]

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[1] A problem not discussed in the text is the fact that some students in all sectors did not take the tests, and the proportion differs from sector to sector. For the mathematics test, it is 9.2 percent for sophomores and 13.0 percent for seniors in the public sector, 4.2 percent for sophomores and 8.8 percent for seniors in the Catholic sector, and 18.2 percent for sophomores and 19.0 percent for seniors in the other private sector. To take into account these differences, test scores were imputed for those with missing test scores, using a variety of predictor variables. For example, for the mathematics test for seniors, the following variables were included: grades in school; number of semesters of mathematics courses in grades 10 to 12; having taken algebra 2, calculus, remedial mathematics, advanced mathematics; reading the front page of the newspaper; interest in school; satisfaction with self; absences; tardiness; sex; father's education; mother's education; family income; race; and ethnicity. Separate regression equations were estimated for seniors and sophomores, and for public and private (the two private sectors together). R^2 were .37 and .50 for sophomores and seniors in public schools and .39 and .47 for sophomores and seniors in private schools. Recalculating the mean achievement in mathematics after values were imputed changes the means very little (sophomores: 9.2, 11.1, 11.2 in public, Catholic, and other private, and seniors: 10.4, 12.2, 12.7 in public, Catholic, and other private). Comparing these scores with those in table 6.1.3 shows little difference, with 0.2 in decrease in both sophomores and seniors in public schools, 0.1 increase in both sophomores and seniors in Catholic schools, and 0.1 decrease in sophomores in other private schools, and no change in seniors. Consequently, imputed values were not included in making the calculations in the text. However, to fully test any effect of the missing values, learning-rate calculations were made for mathematics with imputed scores included. These were .02, .07, and .09 for public, Catholic, and other private schools respectively. These show slightly higher values for Catholic and other private schools, but do not change the qualitative inferences made in the text.

6.2.2 Effects of school sector on educational plans

In section 6.1, it was evident that plans for further education are considerably different in the different sectors. What is not clear is just how much of this difference is a matter of selection and just how much is actually brought about by the type of high school attended. We will not be able to answer that question conclusively here, but it will be possible to understand more about the development of educational plans in each of the sectors.

First, controlling on family background characteristics of education, income, race, and ethnicity, as used in table 6.2.3, it is possible to see the differences among the educational plans of students whose parents are similar in these respects. Table 6.2.6, comparable to the combined tables 6.2.1 and 6.2.2 for cognitive achievement, shows these differences. The table is based, as in the case of cognitive achievement, on regressions of level of schooling expected (BB065) on family background (education, income, race, ethnicity) at each grade level and in each sector.

The categories of response in this item are given below, together with the score attached to each. Thus, in examining table 6.2.6, the numbers should be interpreted in terms of the categories of response.

	Score
Less than high school graduation	1
High school graduation only	2
Vocational, trade, business school (less than 2 years)	3
Vocational, trade, business school (2 years or more)	4
College (less than 2 years)	5
College (2 years or more)	6
Finished college (4- or 5-year degree)	7
M.A. or equivalent	8
Ph.D. or equivalent	9

TABLE 6.2.6

ESTIMATED INCREMENTS IN EDUCATIONAL EXPECTATIONS FOR STUDENTS IN PUBLIC AND PRIVATE SCHOOLS WITH FAMILY BACKGROUND CONTROLLED: SPRING 1980

Expected level for public school sophomores with parents of average education, income, race, ethnicity	5.13
Increment (for sophomores) in:	
Catholic schools	.97
Other private schools	.49
Senior increment in public schools	.23
Additional increment for seniors in:	
Catholic schools	-.17
Other private schools	-.01

The table shows that, for sophomores in public schools with parents of average background, the average level of education expected is 5.13, that is, between the categories "less than 2 years of college" and "college (2 years but less than 4)." The seniors in public schools are only .23, or a quarter of a level, higher in expectations. Sophomores with comparable backgrounds in Catholic schools are almost one level (.97) higher, while those in other private schools are about half a level (.49) higher. The seniors in Catholic schools show .17 less gain than the seniors in public schools, or almost no gain relative to sophomores, while the seniors in other private schools show almost the same gain as the seniors in public schools. The lesser sophomore-senior gain in Catholic schools may, of course, be due to the higher levels for Catholic sophomores, which can produce a ceiling effect.

It is also difficult to estimate the differential sophomore-senior change in educational expectations in the different sectors, because of differential dropout in the different types of schools (as shown in table 6.2.4), although this is partially corrected by controlling on family background characteristics. It is possible, for example, that the estimated gain of .23 of an educational level in public schools is due solely to the fact that those with the lowest educational expectations, who are present in the sophomore class, are no longer present in the senior class.

This possible dropout effect can be examined through use of another question (BB068, EB068, YB072), which depends on retrospective accounts to learn whether the sophomores and seniors planned to attend college in earlier years of school. The seniors were asked whether they expected to attend college when they were in grades 8, 9, 10, and 11. The sophomores were asked the same question about their college expectations in grades 6, 7, 8, and 9. Although such retrospective accounts cannot be wholly reliable, they are the only source of such information for these students. And they do show changes over time, indicating that students did discriminate between years, and did not simply respond alike for all years. For the sample as a whole table 6.2.7 shows in panel (a) that 49 percent of seniors indicated that they expected to go to college when they were in grade 8. This rose to 53 percent in grade 9, 58 percent in grade 10, and 63 percent in grade 11. For the sophomores shown in panel (c), the figures are 42 percent at grade 6, 46 percent at grade 7, 54 percent at grade 8, and 61 percent at grade 9. Comparing the two cohorts for grades 8 and 9 shows that sophomores are 5 and 8 percent higher for these two grades, a difference

TABLE 6.2.7

PERCENT OF SENIORS AND SOPHOMORES IN PUBLIC AND PRIVATE SCHOOLS INDICATING EXPECTATIONS TO ATTEND COLLEGE AT EARLIER GRADES: ACTUAL PERCENT AND STANDARDIZED PERCENT FOR STUDENTS WITH AVERAGE U.S. PARENTAL EDUCATION, INCOME, ETHNICITY AND RACE: SPRING 1980

At Earlier Grade	U.S. Total	Public	Catholic	Other Private
Seniors				
a) Actual percent				
At 8th grade	49	46	67	65
At 9th grade	53	50	72	68
At 10th grade	58	56	76	74
At 11th grade	64	62	81	77
b) Standardized percent				
At 8th grade	49	48	62	53
At 9th grade	53	52	66	56
At 10th grade	58	57	70	63
At 11th grade	64	62	75	67
Sophomores				
c) Actual percent				
At 6th grade	42	40	55	57
At 7th grade	46	43	61	60
At 8th grade	54	51	73	70
At 9th grade	61	59	79	74
d) Standardized percent				
At 6th grade	42	41	46	45
At 7th grade	46	44	53	47
At 8th grade	54	52	65	56
At 9th grade	61	59	71	61

that is probably due to the difference between a one- or two-year retrospection and a three- or four-year retrospection.[1] But we will ignore these differences here. The question, then, is whether there was a differential increase from grade 6 to grade 11 in different sectors.

Panel (a) in table 6.2.7 shows the actual percent of seniors who reported expecting to go to college at each grade level in each sector, and panel (b) shows the expected percent for students with family education, income, race, and ethnicity at the national average.[2] Panels (c) and (d) show comparable information for sophomores.

Looking at panels (a) and (c), the actual responses, the data show that college expectations are higher in the private school sectors than in the public sectors. Catholic schools show higher expectations than other private schools in seven of eight comparisons. The differences between sectors in educational plans correspond to differences in family background in the different sectors, except that parental income and education are lower in Catholic schools than in other private schools, while college expectations in Catholic schools are slightly higher in both cohorts.

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[1] The true difference, if the sophomores and seniors were sampled from the same population (i.e., if the senior sample did not exclude dropouts), would be greater than the 5 and 8 percent differences observed.

[2] These numbers in the (b) and (d) panels are calculated for regression equations which used as the dependent variable expectations to attend college (=1) or no expectation or uncertainty (=0). It would have been preferable to use a logit analysis, but that would--in this case--have involved an iterative algorithm that would have been prohibitively expensive to use with the full dataset. In any case, experience shows that the use of a 0-1 dependent variable gives coefficients that lead to calculated values of the proportion positive that are almost identical to those obtained by use of an iterative algorithm for estimation of the logit, so long as the proportions are not too close to 0 or 1. Therefore we can be confident that calculated percentages in the (b) and (d) fourth panels of table 6.2.6 are close to those that would have been obtained if an iterative logit algorithm had been used.

When backgrounds are standardized to the U.S. average, in panels (b) and (d) of the table, the differences are in the same direction. The differences between public and private are reduced, though all private schools remain above the public schools. The differences between Catholic and other private schools increase.

Apart from changes over the years, the differing levels of educational aspirations, when family background is controlled, show results similar to those in table 6.2.6. In both cases, students in Catholic schools show the highest educational aspirations when family background is controlled, students in other private schools the next highest, and public school students the lowest. Expectations are quite high in all sectors, however, and the differences between the sectors are not great.

However, the principal question at hand to which table 6.2.7 is relevant concerns the development or changes in expectations over years of school. What do these retrospective accounts show about such changes in different types of school? First, the expectations grow, and grow substantially. The difference in the sample as a whole is 15 percentage points between grades 8 and 11 for the seniors, and 19 points between grades 6 and 9 for the sophomores. But that growth differs in different types of school. It is difficult to make comparisons, because differing amounts of growth are possible at different levels.

The most commonly accepted way of making comparisons in a case like this is by comparing not percentages, but the logarithm of the ratio of the percentage and its complement, p/(1-p), called a logit. According to a reasonable model of the way effects take place to push proportions up or down, a measure of effects can be made by a comparison of logits for the background-standardized public school percentages and the background-standardized percentages for the two private school sectors, taken from panels (b) and (d). The excess of the private school logit over the public school logit is a measure of the effect of being in the private school on the likelihood of planning to attend college. This "effect" of course includes both any actual effect of the type of school in bringing about college plans and any selection effect that is not captured by statistically controlling on family background.

Thus the fact of a positive value for the diference between private and public school logits is not evidence for an effect of being in that type of school on the development of college plans. What is evidence of such an effect is an increase over the years in school of the difference in logits.

Table 6.2.8 shows the difference in logits between each private school sector and the public schools, based on panels (b) and (d) of table 6.2.8. The results are very mixed. The data in panel (a) for the seniors shows no increase for the Catholic schools and a small increase for the other private schools. Thus the senior data suggest that being in a Catholic school has no greater effect on increasing college plans than does being in a public school, and that being in an other private school has a slightly greater effect.

But panel (b) for the sophomores presents evidence that conflicts with this. For the Catholic schools, the measure of effect does increase, suggesting that there is a greater effect of being in a Catholic school on growth in college plans than of being in a public school. The measure of effect does not increase for other private schools, suggesting no greater effect of being in such a school on college plans.

TABLE 6.2.8

DIFFERENCES IN LOGITS FOR COLLEGE EXPECTATIONS, STANDARDIZED FOR STUDENTS WITH AVERAGE U.S. PARENTAL EDUCATION, INCOME, ETHNICITY, AND RACE, BETWEEN EACH TYPE OF PRIVATE SCHOOLS AND THE PUBLIC SCHOOLS: SPRING 1980[a]

At Earlier Grade	Catholic	Other Private
a) Seniors:		
At 8th grade	.57	.20
At 9th grade	.58	.16
At 10th grade	.57	.25
At 11th grade	.61	.22
b) Sophomores:		
At 6th grade	.20	.16
At 7th grade	.36	.12
At 8th grade	.54	.16
At 9th grade	.53	.08
c) Sophomores and Seniors:		
At 6th grade (sophomores)	.20	.16
At 7th grade (sophomores)	-.36	.12
At 8th grade (both)	.56	.18
At 9th grade (both)	.56	.12
At 10th grade (seniors)	.57	.25
At 11th grade (seniors)	.61	.22

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[a] Logit of percentage expecting to attend college, minus comparable logit for public schools.

A somewhat more reliable indicator of growth in college plans over time by these students can be obtained by combining the senior and sophomore retrospective data to obtain a single series beginning at grade 8 and continuing through grade 11. To create such a series, the difference in senior logits shown in panel (a) for grades 8 and 9 is averaged with the difference in sophomore logits shown in panel (b) for grades 8 and 9. The result is shown in panel (c). For the Catholic schools and the other private schools, there is a general increase in the gap between each sector and the public sector. There is greater consistency for the Catholic sector, where the absolute levels also suggest a stronger effect; but in the other private schools as well there is an indication of greater growth in educational aspirations for background-standardized students than in the public schools.

The end result of the analysis is that there is reasonably strong evidence of the greater development of college plans in the Catholic sector than in the public sector, and somewhat less strong evidence of greater development of college plans in the other private sector than in the public sector. The different sectors are consistently different in the proportions of students expecting to attend college, even after standardizing on parental education, family income, race, and ethnicity, and there is evidence from retrospective accounts by sophomores and seniors that these differences are not wholly due to initial selection.

Now we turn to the examination of different educational expectations for students with high or low parental education. As in the case of cognitive achievement, the differential educational expectations of students with especially high or low parental education in different sectors can be estimated, through use of the regression analysis used for table 6.2.6. As before, we examine the educational expectations of students whose parents both have only a high school education and students whose parents both have college degrees, in each type of school. The results of this analysis are shown in table 6.2.9. The numbers refer to the scale of educational levels reported in table 6.2.6.

The table shows that the educational expectations of students with parents of low education are lowest if the students are in public schools, and highest if they are in Catholic schools. The difference between Catholic and public schools is 1.4 educational levels, that between other private and public schools is .7 of an educational level.

TABLE 6.2.9

EDUCATIONAL EXPECTATIONS FOR STUDENTS WITH EXTREMES OF PARENTAL EDUCATION, OTHERWISE STANDARDIZED TO U.S. FAMILY BACKGROUND[a] IN PUBLIC AND PRIVATE SCHOOLS: SPRING 1980

Parents' Education	Public		Catholic		Other Private		Difference (at grade 10)	
	10	12	10	12	10	12	Catholic - Public	Other Private - Public
High school graduates	4.0	4.2	5.3	5.5	4.7	4.8	1.3	.7
College graduates	6.3	6.5	6.8	6.8	6.5	6.8	.5	.2
Difference (at grade 10)	2.3		1.5		1.8			

[a] Family background includes parental education, income, race, and ethnicity.

For children of parents with college degrees, the expected education is higher in all sectors. But the difference between sectors is much less, only half an educational level between Catholic and public schools, and only .2 of an educational level between other private and public schools.

The bottom row of the table shows the difference in educational expectations between children of high- and low-education parents in each type of school. Here, the differences are greatest in the public schools and least in the Catholic schools, with the other private schools in between. As in the case of cognitive achievement, the Catholic schools come closest to meeting the ideal of the "common school." The public schools are furthest from this idea in educational expectations. Children from differing educational backgrounds in Catholic schools are most alike in their educational expectations, while children from differing educational backgrounds in public schools are least alike in educational expectations. In other words, in the public schools, the educational plans of children with college-educated parents diverge more sharply from those of children with high-school-educated parents than is true in any other type of school. And the divergence is least in Catholic schools.

The gains in educational expectations from the sophomores to the senior year are small in all sectors and for both levels of parental education. They are least in the Catholic schools. But, as indicated in previous analysis, the retrospective questions examined earlier probably give better information about the development of education plans than does the sophomore-to-senior comparison.

6.3 Factors Affecting Cognitive Achievement in the Schools

The indication that there are different achievement growth rates in different sectors, as well as the evidence of sector effects on homogeneity of achievement, suggests that it may be useful to try to get a better understanding of the differences among the sectors. One strategy for doing so is this: If attending one type of private school, an other private school for example, is hypothesized to bring about higher achievement than attending a public school, then it should be the case that within each of the sectors students achieve more highly in schools that differ from the average school in ways that other private schools differ from public schools--but only, of course, in those ways that make a difference for achievement. If the higher levels of homework that characterize other private schools (chapter 5) are effective in leading to higher achievement, then in those schools that have high levels of homework, no matter whether they are Catholic, public, or other private, achievement should be higher than in other schools of that sector. If other private schools are not more effective for cognitive achievement, or if some aspect of other private schools other than homework is the factor that makes for higher achievement, then achievement should not be higher, in such an analysis. If, for example, other private schools are more effective, but it is their smaller size (as shown in chapter 2) that makes them so, then smaller schools in each sector, not schools with higher homework levels, should show higher achievement when student background is controlled.

Thus, this will be the general strategy: to examine the relations, within each of the sectors, of various factors that distinguish the Catholic and other private schools from the public schools. If certain of these factors do consistently make a difference in cognitive achievement, whatever the sector, then this is rather strong evidence both that the different school sectors do bring about differing achievement, and that one way they do so is through their difference on the factors that in the analysis shows effects on achievement. In addition, beyond confirming the differential effects on achievement of different school sectors, this approach will give some insight into the policies that, in any sector, affect achievement.

The first examination concerns discipline-related behavior. Analyses were carried out on the relation of attendance, being late to school, and cutting classes to achievement in each of the three sectors. Parental education, family income, race, and ethnicity were statistically controlled. The analyses were carried out for sophomores and seniors together, with a 0-1 variable for sophomore-senior grade level. Scores in the reading, vocabulary, and mathematics subtests with common items for seniors and sophomores were used as dependent variables.

Table 6.3.1 shows the regression coefficients for absenteeism, lateness, and cutting classes (all in the same equation) in each of the four types of schools. In addition, means on each of these variables are listed, in the bottom panel. (Cutting classes is a 0-1 variable, so that the coefficient can be interpreted as an effect of "cutting classes now and then" versus not doing so. The other variables are scaled, with one unit being the difference in one category in the item responses.)

There is a high degree of consistency in the results. The coefficients are almost all negative, meaning that students who report missing school or class or being late achieve consistently less well,

TABLE 6.3.1

ACCOUNTING FOR READING, VOCABULARY, AND MATHEMATICS SCORES: REGRESSION COEFFICIENTS AND MEANS FOR ABSENTEEISM, LATENESS, AND CUTTING CLASSES, IN ANALYSIS WHICH INCLUDES FAMILY BACKGROUND AND GRADE LEVEL: SPRING 1980[a]

	Public	Catholic	Other Private
Reading:			
Absenteeism	-.10	-.13	-.27
Lateness	-.03	-.08	-.06
Cutting classes	-.19	-.22	-.02
Vocabulary:			
Absenteeism	-.09	-.06	-.21
Lateness	-.02	-.12	.00
Cutting classes	-.09	-.23	+.08
Mathematics:			
Absenteeism	-.36	-.32	-.42
Lateness	-.05	-.13	-.10
Cutting classes	-.45	-.47	-.59
Means			
Absenteeism	2.41	1.91	2.20
Lateness	2.21	2.00	2.43
Cutting classes	.38	.18	.34
R^2 reading	.181	.084	.222
vocabulary	.196	.111	.258
mathematics	.208	.090	.261

[a] Family background includes parental education, income, race, and ethnicity.

in all sectors, than those from the same types of family background who do not do these things.[1] Of the three types of behavior, lateness is least related to achievement.

Something about the magnitude of the effect of these types of behavior, at the levels at which they exist in the various types of schools, can be obtained by multiplying the regression coefficients shown in the upper three panels of table 6.3.1, by differences in the means of the variables between different sectors. The result shows the amount of extra achievement in one sector (the sector with the lower level of absences, lateness, or class cutting) over that in another which is related to these three problems of discipline. For example, the difference between Catholic schools and public schools in cutting classes is a difference of 18 percent versus 38 percent. This difference (.18 - .38) multiplied by the regression coefficient of -.45 (effect of cutting classes on mathematics achievement in public schools) gives a value of .09. This means that, on the average, achievement was lower in the public schools by .09 of an item in the mathematics test because of disciplinary policies that allowed a level of 38 percent of students cutting classes rather than the 18 percent found in Catholic schools.[1]

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[1] This does not imply, of course, that public schools could easily establish and implement those policies. In chapter 5 we pointed out the much greater restrictions on the public schools in ability to carry out effective discipline.

One might argue that the reasoning in the text is flawed--that policy differences leading to different levels of absenteeism would not affect achievement but rather that the kind of students who tend to be lower achievers are those who are absent or cut classes, and it is not the absences themselves that reduce achievement. This may be so, and the issue certainly merits further attention. However, the similarity of regression coefficients in the different sectors, where policies lead to very different levels of absenteeism, suggests that the interpretation in the text may be the correct one. The question is examined explicitly later in this section.

Carrying out such an exercise over all tests, comparing the public schools with both private school sectors and summing over the three types of behavior, shows the loss in reading, vocabulary, and mathematics achievement in public schools that is due to the higher degree of absenteeism, lateness, and class cutting found in these schools as compared to the levels found in both Catholic schools and other private schools (table 6.3.2). The public school losses are highly consistent, are greater relative to the Catholic schools, and seem to be somewhat higher for mathematics. (The number of items on the mathematics test is 18, a little over twice that on the other two; consequently, its coefficients should be expected to be about twice as great as the others. But they are somewhat greater than this.) The achievement losses are not large, but this must be seen in perspective: the differences in mathematics due to Catholic-public behavior differences are about one-fourth of all the mathematics achievement gain from the sophomore to the senior year. In addition, the indicators we have used of different levels of discipline-related behavior are very likely pale reflections of the behavioral differences among these schools. Thus, the actual effects of all discipline-related behavioral differences between these schools may be considerably greater (as subsequent analysis indicates).

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[1] When independent variables in a regression equation are correlated, as these three are, there is sometimes instability in individual coefficients, becoming extreme in opposite directions. This seems to be what has occurred for vocabulary in other private schools, for example. There are techniques, such as ridge regression, for restabilizing the coefficients. But if one is interested only in the combined effects, as we are here, then the approach we use in table 6.3.2 and subsequent analyses is ordinarily sufficient.

TABLE 6.3.2

ACHIEVEMENT LOSSES IN THE PUBLIC SCHOOLS RELATIVE TO EACH TYPE OF PRIVATE SCHOOL DUE TO HIGHER LEVELS OF ABSENTEEISM, LATENESS, AND CUTTING CLASSES IN THE PUBLIC SCHOOLS: SPRING 1980

Test	Public relative to	
	Catholic	Other Private
Losses (as fractions of an item) in:		
Reading test	-.09	-.02
Vocabulary test	-.07	-.02
Mathematics test	-.28	-.08

The suggestion that absenteeism, being late, and cutting classes may make more difference for mathematics than for reading or vocabulary finds confirmation in another way. Regression analyses just like those described for tables 6.3.1 and 6.3.2 were carried out with these variables, but with logarithm of school size included. Then the same regression was carried out, but no longer including the three behavior variables. The question is: For which of the tests did the amount of explained variance go down most when the three behavior variables were not included? The answer is, the mathematics test. In seven of eight comparisons of mathematics with other tests, the reduction is greater in mathematics. It thus appears that mathematics achievement is more sensitive to behavioral problems than is achievement in reading comprehension or vocabulary.

When we turn to size of school itself as a factor differentiating public and private schools, and possibly making for differential achievement, we find that size of school is positively related to achievement in the Catholic and other private sectors for all three tests, and in the public sector for two of the three, when family background and grade in school are controlled. Thus it appears that public schools have a gain in achievement relative to private schools as a consequence of their larger size. The amount of gain they experience can be calculated as it was done in the case of the behavior problems: by multiplying the regression coefficient for the effect of size by the difference in average size between sectors.[1] Before presenting these results, however, it is useful to introduce another set of variables: the attendance variables whose effect was discussed above. For the relation of school size to achievement is positive, while the relation of absenteeism, lateness, and cutting classes to achievement is negative, but the latter are positively related to size. At least, this is the case in the public schools. The correlation of the three behavior problems with the logarithm of size is as given below in the three sectors:[2]

	Public	Catholic	Other Private
Absenteeism	.02	-.02	.00
Lateness	.10	.00	-.20
Cutting class	.12	.00	.01

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[1] The variable actually used in the regression is logarithm of size. In the calculation described in the text, regression coefficients for the school sector to which the size-related loss (or gain) will be attributed are used. This is because, as will be evident in the discussion, we want to distinguish the gain that private schools could expect through change in average size to that of public schools from the loss that public schools could expect through a change in average size to that of private schools.

[2] Because the number of private schools is 27, the number of Catholic schools is 84, and the number of public schools is 894, and because size is a school-level variable, sampling variation in correlations can be expected in other private schools, and to a lesser degree in Catholic schools.

Controlling on the behavior problems in a regression of achievement on size is like hypothetical experiment: What would be the effect of size on achievement _if_ school staff were able to control the behavior problems that are correlated with size. The absence of correlation with size in the private schools (or, in the case of lateness, in other private schools, a negative relation to size) shows that the question is not a hypothetical one for staff in private schools. They apparently _are_ able to control the behavior problems that in the public schools increase with size. This may be due to the greater degree of overall control that private schools are able to exercise, or to the smaller sizes of the schools.

Table 6.3.3 shows (in the upper three lines) the gains--or, in the case of reading, losses--that public schools experience in relation to Catholic and other private schools because of their large size. But comparing that to the next three lines shows that these gains are smaller than they would be--and the losses larger than they would be--with the behavior problems controlled. (It should be emphasized that the true effect of size might be less than indicated in this analysis because large schools in the public sector are positively associated with certain background variables that have not been statistically controlled, such as parental expectations and small family size, both of which are positively related to achievement. But, even if this is the case, it would merely reduce the measured effect of size by a constant amount.)

The positive effect of size, assuming that it is a true effect, might be due to any of several factors. It was once assumed, in fact, that larger schools meant better education, as in Conant's influential

TABLE 6.3.3

ACHIEVEMENT DIFFERENCES IN PUBLIC SCHOOLS
RELATIVE TO PRIVATE SCHOOLS DUE TO THE
LARGER SIZE OF PUBLIC SCHOOLS:
SPRING 1980

Item	Public Relative to	
	Catholic	Other Private
Family background controlled:		
Reading	-.03	-.08
Vocabulary	.03	.09
Mathematics	.01	.03
Family background and attendance controlled:		
Reading	-.02	-.05
Vocabulary	.04	.12
Mathematics	.04	.12
R^2 for each sector (with attendance and background controlled)		
Reading	.163	
Vocabulary	.192	
Mathematics	.201	

The American High School Today (1959). The arguments were that there is greater depth and breadth of program is possible in large schools, that specialized classes dealing with advanced topics and better laboratory facilities are possible in larger schools. All these points are true; but the data suggest that these virtues of size are, in public schools, largely cancelled out by the inability to manage behavior problems as school size increases--an inability that has very likely grown since Conant made his survey of high schools in 1958.

The analyses of tables 6.3.1 and 6.3.2 included only a small number of background variables, and did not include other possible school factors that might be responsible for some of the differences found. Initially our strategy was to proceed in this way generally, examining sequentially the effects of various school factors that differ between public and private schools, in separate regression equations. However, the correlations between these various school characteristics mean that such a procedure might easily lead to incorrect inferences, attributing effects to one factor in the schools that are due to a factor that is correlated with the first but not included in the equations.[1] Consequently, a single analysis is carried out for all of the factors to be examined. In addition, to reduce the lowest level possible any spurious inferences due to differences in family background that are correlated with school factors, all of the family background factors used for the analysis reported in table 6.2.1 are included in subsequent analyses. For each of the characteristics of schools and of school functioning that is a source of possible differences in the effectiveness of public and private schools, we ask the following pair of questions:

1. What is the level of that characteristic in Catholic or other private schools, for students with the same subjective and objective background characteristics as the average sophomore public school student? For example, the overall average difference between Catholic school and public school sophomores in the amount of homework they do is the difference between

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[1] Thomas DiPrete first brought this matter to our attention. His analysis for another report from the High School and Beyond project, Discipline and Order in American High Schools, suggested that this might be the case. We thank Professor DiPrete.

5.56 hours a week in the Catholic schools and 3.75 a week in the public schools. But for Catholic school sophomores with the same subjective and objective characteristics as the average public school sophomore, the 5.56 hours a week is reduced to 4.92 hours a week.[1] Thus, the difference in levels of homework for the same type of student between the public and Catholic schools is 4.92 - 3.75, or 1.2 hours a week of homework.

2 What difference in achievement would we expect to find in the public schools if the school factor were at the level at which it is found in Catholic or other private schools for students of a given background (i.e., the background of the avarage public school sophomore)? For example, what increment in achievement would we expect to find in the public schools if the average public school student spent 1.2 more hours on homework? This is obtained by multiplying the 1.2 hours by the regression coefficient for the effect of homework on achievement in public schools, controlling for the effects of family background characteristics and other school factors.

Thus there are two questions of interest for each of the school factors that might contribute to the public-Catholic or public-other private difference in achievement: What is the difference between the level of that factor in the Catholic or other private schools and public schools, for students like the average public school sophomore? And what would be the expected difference in achievement in the public schools if that factor were at the level found in the Catholic or other private schools, controlling on family background and other school factors? We address these questions in turn.

6.3.1 The difference in levels of school factors between public and private schools for students of comparable backgrounds

Each of five areas related to the functioning of the school was examined as a potential means through which private schools obtain different levels of achievement from comparable students. These are:

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[1] The standardized estimates of school functioning were calculated as follows: For each grade in the public and private sectors, we estimated separate regression equations for each of the school functioning variables using the seventeen family background characteristics. A background-standardized estimate for the level of school functioning in each grade and sector was calculated using the means of the public school sophomore characteristics and the effects of these background characteristics in the respective sector and grade.

1. Different coursework. This was measured in two ways. For mathematics in the senior year, it was possible to measure coursework in mathematics, that is, the total number of courses that the student had taken among the following: algebra 1, algebra 2, geometry, trigometry, calculus. As chapter 5 showed, higher proportions of private school seniors than public school seniors have taken each of these courses. Unfortunately, for the reading and vocabulary tests, and for the mathematics test for sophomores, there is no comparable measure of coursework. Instead, for these tests, having taken an honors English course (for the reading and vocabulary tests) or an honors mathematics course (for the mathematics test) was used as the measure of coursework. This is a poor measure of coursework differences between public and private schools, both because the proportions of students having taken an honors course were very similar in the three sectors and because an "honors" course means very different things in different school contexts.

2. Homework. As chapter 5 showed, the amount of homework in the Catholic schools is greater than that in the public schools, and the amount in the other private sector is greater yet. For both sophomores and seniors it was possible to estimate the actual hours per week spent on homework.

3. Attendance in school and class. Chapter 5 showed that students in Catholic schools were much less often absent and much less likely to cut class than students in public schools. Students in other private schools were between the Catholic and public schools on these measures of behavior.

4. Disciplinary climate. Students were asked three questions related to the disciplinary climate of the school, as shown in chapter 5: how interested the teachers are in students, how effective the discipline is in the school, and how fair the discipline is in the school. Each school was characterized by the average of the responses for all the students in that school, and these averages were then used as measures of the school disciplinary climate. As chapter 5 showed, there were some differences in the average disciplinary climates in the three sectors.

5. Student behavior in the school. The behavior of all the students in the school may have some effect on what individual students learn, even controlling on the student's own behavior. The items used as a measure of the behavior in the school were the averages, over the school, of sophomore responses to four questions asking the extent to which certain types of behavior occurred in the school: students not attending school, students cutting classes, students fighting, students threatening or attacking teachers. Alternative measures of attendance and cutting classes were obtained by averaging over the school the students' responses concerning their own attendance and cutting classes, and characterizing each student by the average in the school, excluding his or her own responses.

Chapter 5 showed the differences in the levels of these school characteristics in public and private schools. The differences in these characteristics for students from the same family backgrounds are of interest here. More specifically, we are interested in the differences for students who are like the average public school sophomore, so that the levels of the school characteristics are standardized to the public school sophomore population. The importance of this question lies in the fact that the family backgrounds of public, Catholic, and other private school students differ in both objective characteristics, such as parental education and income, and in subjective characteristics, such as the amount of student conversation with parents about schoolwork. In most of these ways, students in public schools have backgrounds that are less conducive to achievement than do students in private schools. Thus the measures of school functioning, which are in part determined by the backgrounds from which the students come, must be adjusted or standardized for student background in order not to attribute to school policies those differences in achievement that are in fact due to student background effects on school functioning.

The background-standardized measures of school functioning are shown in table 6.3.4. The table shows that with very few exceptions (all in the percent taking honors mathematics or honors English) the Catholic and other private schools are higher in those characteristics that appear to be conducive to achievement (homework, teacher interest, fairness or effectiveness) and lower in those that appear inimical to achievement (absenteeism, cutting class, fighting, threatening teachers). The differences are generally reduced compared to those found in chapter 5 because standardization of family background brings the student behavior

TABLE 6.3.4

DIFFERENCES BETWEEN PRIVATE AND PUBLIC SCHOOLS IN LEVELS OF VARIOUS SCHOOL CHARACTERISTICS AND STUDENT BEHAVIORAL VARIABLES STANDARDIZED TO STUDENTS WITH FAMILY BACKGROUNDS LIKE THAT OF THE AVERAGE SOPHOMORE IN PUBLIC SCHOOLS: SPRING 1980[a]

Item	Sophomore		Senior	
	Catholic minus Public	Other Private minus Public	Catholic minus Public	Other Private minus Public
1) Percent taking honors English	-3%	-4%	1%	-7%
Percent taking honors mathematics	1%	-6%	1%	-2%
Advanced mathematics courses taken (5 maximum)	--	--	.72 courses	.35 courses
2) Homework	1.2 hrs.	1.3 hrs.	0.8 hrs.	1.3 hrs.
3) Absenteesim (high = often absent)	-.43	-.07	-.40	-.17
Percent cutting class	-20%	-4%	-20%	-7%
4) Mean perceived teacher interest	.39	.49	.39	.50
Mean perceived teacher fairness	.17	.10	.18	.11
Mean perceived teacher effectiveness	.58	.30	.58	.30
5) Mean perceived absenteeism[b]	.70	.65	.66	.56
Mean perceived cutting class[b]	.79	.36	.80	.54
Mean perceived student fights[b]	.40	.55	.38	.56
Mean perceived threaten teachers[b]	.18	.18	.07	.17
Mean absenteesim (excluding self)	1.94	2.25	1.93	2.22
Mean percent cutting class (excluding self)	.16	.30	.15	.30

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[a] Family background characteristics controlled are those used in table 6.2.1. The numbers in the table are obtained by first multiplying public school sophomore background means by regression coefficients from the regression of the variable in question on family background to obtain the expected level of the variable in question for that population, using regressions carried out on private school sophomores, private school seniors, and public school seniors and then subtracting the public school value from the private school value.

[b] Highest value (3) = rarely or never.

in the private schools closer to that in the public schools. Yet the differences remain in the same direction as those in chapter 5, when student background was not controlled.

6.3.2 Differences in achievement attributable to particular school characteristics and student behavior

Given these differences, it becomes possible to estimate the effect of being in a Catholic or other private school on achievement through each of the types of differences. This will show, for example, the estimated gain in achievement if the amount of homework done by public school sophomores were the same as that done by Catholic school students with similiar backgrounds (that is, an extra 1.2 hours a week), but other measured characteristics of the school remained the same.

In this way some or all of the differences between private and public schools shown in table 6.2.1 may be accounted for or explained. For example, in table 6.2.1, the reading achievement in Catholic schools of sophomores with backgrounds similar to those of public school sophomores is 0.31 items greater than that of the public school sophomores. This difference of 0.31 items may be due in part to the 1.2 hours more homework in the Catholic schools. Carrying out the calculations we can see that public school sophomores who are average in all the measured family background characteristics and in a school that is average in the measured school characteristics get .06 more items on the reading test covered if they do the same amount of homework as similar students (i.e., background-standardized) do in the Catholic sector.

In carrying out this examination, the amount of achievement explained by the variables in each of the five areas of school functioning is added, to give a total explained by measured characteristics in that area.[1] Thus, in the area of coursework, homework, attendance, disciplinary climate, and student behavior, the analysis results in a number that is the amount of achievement difference between public and Catholic or other private schools that can be accounted for by the differences in the level at which that factor exists in each sector. If the number is positive, this means that the average public school student would gain in achievement if the public school operated at the same level as the average Catholic or other private school. If the number is negative, it means that the average public school student would have lower achievement if the public school operated at the same level as the average Catholic or other private school.

Table 6.3.5 shows the overall difference in achievement in reading, vocabulary, and mathematics in public and private shcools, controlling on student background, taken from table 6.2.1, and the amount of achievement difference that can be accounted for by the differences in each of the five areas. The sum of these five differential achievements (labelled "total accounted for" in the table) is the amount of achievement difference explained by all these measures of school functioning. If that sum is less than the overall difference in achievement, there remains an unexplained achievement difference between the private and the public sector. If the total accounted for is greater than the overall difference (as, for example, with reading achievement for sophomores in the Catholic-public comparison--.31 overall differences and .43 accounted for), this suggests that there are other unmeasured school factors that partly compensate for the effects of these factors

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[1] In terms of calculations, this was estimated by multiplying the difference in the two levels of functioning (seen in table 6.3.4) by the relevant regression coefficient in the public sector.

TABLE 6.3.5

ACHIEVEMENT DIFFERENCES BETWEEN PRIVATE AND PUBLIC SCHOOLS DUE TO VARIOUS AREAS OF SCHOOL FUNCTIONING, FOR STUDENTS WITH FAMILY BACKGROUNDS LIKE THAT OF THE AVERAGE SOPHOMORE IN PUBLIC SCHOOLS: SPRING 1980

	Catholic			Other Private		
	Reading	Vocabulary	Mathematics	Reading	Vocabulary	Mathematics
Sophomores						
Coursework	.02	.02	-.02	.02	.02	.10
Homework	.06	.04	.14	.06	.05	.16
Attendance	.04	.03	.16	.01	.01	.03
Disciplinary climate	-.03	-.08	-.18	.05	-.01	.13
Student behavior	.35	.13	.51	.37	.25	.66
Total accounted for	.43	.14	.61	.52	.31	1.08
Overall (from table 6.2.1)	.31	.36	.57	.14	.33	.54
Seniors						
Coursework	-.01	-.01	1.07	.04	.05	.51
Homework	.05	.03	.02	.07	.05	.03
Attendance	.02	.02	.04	.01	.01	.01
Disciplinary climate	.01	.00	.02	.10	.07	.01
Student behavior	.16	-.03	.15	.18	.10	.41
Total accounted for	.24	.03	1.30	.41	.27	.98
Overall (from table 6.2.1)	.23	.54	.56	.41	.51	.69

but are not included in the analysis. It is clear that the present analysis is imperfect, certainly excluding some factors that either augment or depress achievement in the public schools.[1]

Despite the existence of some puzzling differences between the overall differences and the total accounted for, the results shown in table 6.3.5 give an idea of the sources of the difference in achievement between the public and private sectors. Differences in the level of homework account for a small but consistent part of the differences in achievement; differences in the student's own attendance patterns account for a smaller part. The effects of differences in the disciplinary climate are inconsistent in direction and size. The effects of coursework are difficult to assess, since the measurement is weak except in the senior year for mathematics, where the taking of specific courses was measured and where the effect of coursework on achievement was found to be great. The one area in which the effect of public-private differences is most consistently strong is student behavior (with one inconsistency, in the senior vocabulary test for the Catholic-public comparison).

The effect of student behavior is considerably stronger at the sophomore level than at the senior level. This could reasonably be true for either of two reasons, one purely technical, the other substantive. The technical reason is that the measures of student behavior problems are based on sophomore perception of problems, and thus should reflect behavior problems among sophomores more than among seniors. Insofar as these problems differ in the two grades of the same school, one would expect a lower relation of the perceived problems to senior achievement than to sophomore achievement. The substantive reason is that the sophomore year is before the end of compulsory education for many students. Thus in some schools there are a number of students who are uninterested in school, behave poorly, and perform poorly on tests like those given as a part of the survey. In the senior year, many of these students are missing, having dropped out, and the remaining behavior problems are less associated with achievement. Without further data, it is not possible to distinguish between these two possible reasons for the lower effects at the senior level.

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[1] This is especially true for advanced mathematics courses, where the regression coefficient is 1.40 in the private sector and 1.51 in the public sector.

These measures of student behavior are school-level measures and it is important to clarify exactly what they refer to. To some degree, the student's own behavior is statistically controlled through the two measures of the student's own attendance, which constitute area 3 in the table. If the student's own behavior were fully controlled statistically, we could attribute this student behavior effect wholly to the effect of behavior problems among other students on the student's own achievement. As it is, such an inference is somewhat speculative, since the student's own behavior is not well controlled statistically. Yet the indication is there that the effect may be not only through the interference of the student's misbehavior on that same student's achievement, but also through the general level of behavior disorder on the achievement of even those students whose behavior is good.[1]

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[1] It is not fully clear just what is measured by these perceptions of student behavior. They are not direct measures of the actual rates of behavior problems, and they may be measures of some more subtle difference in the disciplinary character of the school. We conducted a partial test of this question for two of the four measures used in this analysis. Direct measures from the students are available for absenteeism and cutting classes. For each student we calculated a measure of the average absenteeism and percent who cut classes among the students in that student's school who were in the survey, excluding the student's own responses to these two questions. The effects of these two measures of attendance,

A student's achievement may be affected by other students' behavior in several ways. Some of these are not completely understood, but the time a teacher must devote to disciplining students rather than teaching, how much repetition of material is required to have most of the students understand new material, and the distractions that disorder in the school imposes on the student may all have an effect.

In one of the areas, disciplinary climate, the inconsistent results present something of a puzzle. If the lesser degree of student behavior problems in private schools does make a difference in achievement then presumably the disciplinary differences between the public and private sectors should as well, because they influence student behavior. The last dependent clause is the key to the puzzle of disciplinary differences show inconsistent, sometimes negative effects. By statistically controlling student behavior and homework, we controlled on the intervening variables through which the school's disciplinary climate should have its effect. Thus the very paths through which a disciplinary climate can have its principal effect have been excluded from consideration in assessing the effect of the disciplinary climate. To see the true effect of the disciplinary-climate differences between public and private schools, we should examine not only their direct effect, but also their effect through student behavior.

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as they differ between the public and private sectors, can be compared to the effects of the two measures obtained from sophomores' perceptions. Background-standardized differences between the public sector and the two private sectors on these two measures of attendance were calculated and the actual school-level behavior for each student was substituted in the general equation used in preparing table 6.3.5. The difference between the effects of sophomore perceptions of attendance behavior and the actual average attendance behavior of all other students was twofold. We found the effects of students' actual attendance behavior to be consistently negative, but, generally, the amount of loss or gain in achievement is lower. This suggests that, although something more than actual student attendance is captured by the student perception of behavior, actual average school attendance does have a negative effect on school achievement.

A portion of this is shown in table 6.3.6 which presents the effect of public-Catholic and public-other private differences in disciplinary climate on the four items of perceived student behavior that were shown as part 5 in table 6.3.4, again for a standardized public school sophomore student body. This does not capture the effects of disciplinary climate through the two measures of individual student behavior included in the analysis--that is, homework and attendance--but it does capture the effects through the paths of the four aspects of student behavior as perceived by sophomores.

Table 6.3.6 shows just how much of the differences in perceived absenteeism, class cutting, student fights, and threatening teachers between the public sector and the two private sectors can be accounted for by differences in disciplinary climate (see table 6.3.4 for the three items of disciplinary climate), for both sophomores and seniors. These "discipline-related" differences in behavior can be compared to part 5 of table 6.3.4, to see what proportion of the difference in behavior is accounted for by these items of disciplinary climate. For example, the total difference between public and Catholic schools in perceived absenteeism is .70, and the difference accounted for by disciplinary climate is .18, or 26 percent of the total. (It is important not to conclude that only this much of the variation in background-standardized attendance is a consequence of the discipline in the school; the three items used as indicators must certainly be only weak indicators of the disciplinary character of the school).

With this information, it is possible to estimate the effect of the disciplinary climate through four aspects of school-level student behavior. This is shown in the lower half of the table. In nearly

TABLE 6.3.6

DIFFERENCES BETWEEN PRIVATE AND PUBLIC SCHOOLS IN LEVELS OF BEHAVIOR PROBLEMS DUE TO DIFFERENCES IN LEVELS OF DISCIPLINARY CLIMATE AND ON ACHIEVEMENT THROUGH EFFECTS OR BEHAVIOR PROBLEMS (STUDENT BACKGROUND STATISTICALLY CONTROLLED): SPRING 1980

	Effects of Disciplinary Climate Differences:	
	Catholic-Public	Other Private-Public
Sophomores:		
Effects on:		
Mean perceived absenteeism	.18	.13
Mean perceived cutting class	.29	.16
Mean perceived student fights	.15	.14
Mean perceived threaten teachers	.14	.11
Seniors:		
Effects on:		
Mean perceived absenteeism	.17	.13
Mean perceived cutting class	.19	.14
Mean perceived student fights	.14	.14
Mean perceived threaten teachers	.13	.10

	Effects Through Behavior Problems in Achievement					
	Catholic			Other Private		
	Reading	Vocabulary	Mathematics	Reading	Vocabulary	Mathematics
Effects for:						
Sophomores	.13	.07	.25	.10	.07	.22
Seniors	.06	-.01	.13	.06	.04	.16

all cases, the positive effects of disciplinary climate through student behavior outweigh the negative direct effects shown in table 6.3.5. Thus, through the the aspects of behavior shown in table 6.3.6 the disciplinary-climate differences between the public and private sectors lead to greater achievement in the private sectors, though the imperfections of measurement have very likely masked part of the effects.

6.4 Summary of Educational Outcomes

This section has examined two kinds of outcomes in public and private schools: cognitive outcomes, as measured by standardized test scores in reading, vocabulary, and mathematics; and plans for after high school, primarily plans for further education. The first question, in section 6.1, was just how the sectors differ in these respects. The second question, in section 6.2, was whether being in a private school made any difference in cognitive achievement or educational aspirations, or whether the greater achievement and aspirations in the private sector were wholly due to selectivity. The third question, in section 6.3, was, given the greater cognitive achievement in private schools, and given the strong evidence from section 6.2 that private schools have an effect in increasing achievement, what are the mechanisms through which that greater achievement comes about?

The answer to the first question is that achievement is somewhat higher, in both the sophomore and senior years, in Catholic schools and in other private schools than it is in public schools. Achievement in the high-performance private schools is considerably higher than that in the high-performance public schools, but both are higher than in either of the private sectors.

The differences between sectors in educational expectations and aspirations are similar to the differences in achievement. The sectors are ordered in the same way, with public school students having the lowest educational aspirations and those in the high-performance private schools having the highest aspirations. For the other post-secondary activity, work, the order is reversed. Among seniors who planned to work full time after graduation, a higher proportion in the public schools already had a job lined up. This suggests that the greater vocational resources and opportunities in the public schools, as shown in chapter 4, lead to a better connection with the world of work for those students who are going into the full-time labor force.

The second question, which attempted to separate effects of private schools on achievement and aspirations from selection into private schools, is examined in several ways. In the examination of effects on achievement, statistical controls on family background are introduced, in order to control on those background characteristics that are most related to achievement. A large number of background characteristics is introduced, to insure that the selectivity-related differences are controlled for. The achievement differences between the private sectors and the public sector are reduced (more for other private schools than for Catholic schools), but differences remain. Then there is an examination of imputed growth from the sophomore to the senior year. In a first examination of differential growth, the Catholic schools appear to show about the same growth rates for students comparable to the average public school sophomore and the other private schools about a 25 percent higher growth rate. This, however, is subject to the serious problem of differential dropout in different sectors.

The high rate of dropouts in the public sector, which, if present, would expand the senior class by 31 percent, indicates that the sophomore-senior growth rate in the public schools is considerably overestimated. The dropout rates in Catholic and other private schools are less than half as great, indicating much less bias in the estimates of their growth rates. When the dropout bias is taken into account, with an assumed distribution of achievement among the dropouts, the estimated learning rate is considerably higher in both private sectors than in the public sector. Thus the indication is that there is a non-trivial effect of the Catholic and other private schools in bringing about higher cognitive achievement, wholly apart from their selectivity.

In addition, there is a major difference in homogeneity of achievement between Catholic schools on the one hand and public and other private schools on the other. Students of parents with different educational backgrounds achieve at more nearly comparable levels in the Catholic schools than in the public schools, while the achievement levels are even more divergent in other private schools than in the public schools. And comparison of blacks and Hispanics in Catholic and public schools (controlling on parental income and education) reveals that as sophomores these minority students achieve at a level closer to that of non-Hispanic whites in Catholic schools than in public schools; the achievement gap between minorities and non-Hispanic whites as seniors decreases slightly in Catholic schools, while it increases slightly in public schools. Altogether, the evidence is strong that the Catholic schools function much closer to the American ideal of the "common school," educating children from different backgrounds alike, than do the public schools.

Turning to educational aspirations, the question arises whether the private-public difference is wholly due to selection or is in part due to effects of the sector. Statistical controls on family background leave a difference, with students in Catholic schools showing especially high aspirations. No differential sophomore-senior growth is found, except for lower growth in Catholic schools. This result is suspect, however, because of a ceiling effect due to the higher level of aspirations among Catholic school sophomores. Using the same reasoning about dropouts as was used in the case of cognitive achievement, it appears that there is a positive effect, non-trivial in size, of being in a Catholic or other private school on educational aspirations. An analysis that uses retrospective reports of seniors and sophomores about expectations of attending college in earlier years confirms this, through evidence that the proportion planning to attend college increases more in the private sectors than in public sector.

Again, the Catholic schools show much greater homogeneity in the educational aspirations among students from different parental education backgrounds than do other schools. Here the other private schools are intermediate and the public schools are at the extreme, public school students with low educational backgrounds being furthest from those with high educational backgrounds in their own educational aspirations.

The third question is a question about what differences between public and private schools are responsible for the additional achievement that occurs in the private schools. The answer to this is only partial, because the investigation covered only selected differences. But the partial answer is fairly clear.

There are at least two important ways in which private schools produce higher achievement outcomes than public schools. First, given the same type of student (i.e., with background standardized), private schools create higher rates of engagement in academic activities. School attendance is better, students do more homework, and students generally take more rigorous subjects (i.e., more advanced mathematics). The first two of these factors provide modestly greater achievement in private schools. The third, taking advanced mathematics courses, brings substantially greater achievement. The indication is that more extensive academic demands are made in the private schools, leading to more advanced courses and thus to greater achievement. This is a somewhat obvious conclusion, and the statistical evidence supports it. Second, student behavior in a school has strong and consistent effects on student achievement. Apart from mathematics coursework for seniors, the greatest differences in achievement between private and public schools are accounted for by school-level behavior variables (i.e., the incidence of fights, students threatening teachers, etc.). The disciplinary climate of a school, that is, the effectiveness and fairness of discipline and teacher interest, affect achievement at least in part through their effect on these schoollevel behavior variables.

Although these answers are only partial, in that additional school factors may also explain the different outcomes in the sectors, they strongly suggest that school functioning makes a difference in achievement outcomes for the average student. And private schools of both sectors appear to function better in the areas that contribute to achievement.

CHAPTER 7

CONCLUSION

In chapter 1 of this report, we examined a number of premises underlying policies that would increase the role of private schools and a number underlying policies that would decrease their role. Perhaps the best way to conclude is to review those premises, to see just which premises this report has provided evidence on, and what can be concluded from the evidence about each premise. In addition, other results were found along the way, some of which provide additional information that bears upon the overall policy questions.

Premises underlying policies that would increase the role of private schools:

1. Private schools produce better cognitive outcomes than do public schools (chapter 6).

The evidence from chapter 6 is that private schools do produce better cognitive outcomes than public schools. When family background factors that predict achievement are controlled students in both Catholic and other private schools are shown to achieve at a higher level than students in public schools. The difference at the sophomore level, which was greater for Catholic schools than for other private schools, ranged from about a fifth of the sophomore-senior gain to about two-thirds the size of that gain (i.e., from a little less than half a year's difference to something more than one year's difference). This evidence is subject to a caveat: despite extensive statistical controls on parental background, there may very well be other unmeasured factors in the self-selection into the private sector that are associated with higher a achievement.

When we examined gains from the sophomore to the senior year in the three sectors, the first evidence was that students from comparable backgrounds make greater gains in other private schools than in public schools, but that students in Catholic schools do not. However, the much greater sophomore-senior dropout in public schools than in either the Catholic or other private schools shows that the apparent public school gains have a considerable upward bias, leading to the conclusion that greater cognitive growth occurs between the sophomore and senior years in both private sectors than in the public sector.

A caveat to all these results is shown by the high-performance public and private schools. Performance was much higher in both of these sets of schools, than in any of the three sectors (section 6.1), although these schools could not be separately studied in the extended analysis of section 6.2 because of ceiling effects in achievement scores.

2. Private schools provide better character and personality development than do public schools (chapter 5).

Little evidence on character and personality development was provided in this report. However, students in other private schools show both higher levels of self-esteem and fate control than sophomores and higher gains from the sophomore to senior year than students in public or Catholic schools. The inference that there is greater growth on these dimensions in other private schools is strengthened by the fact that students in high-performance private schools showed even higher levels as sophomores, and similarly high sophomore-senior gains, while students in high-performance public schools did not, despite the fact that the parental backgrounds of students in the latter schools are higher than those in other private schools. The fact that the other private and high-performance private schools have less than half the student-teacher ratio than schools in the other sectors suggests that the difference might be due to this.

3. Private schools provide a safer, more disciplined, and more ordered environment than do public schools (chapter 5).

The evidence is strong that this premise is true. The greatest difference found in any aspect of school functioning between public and private schools was in the degree of discipline and order in the schools (sections 5.3, 5.4). The Catholic and other private schools appear somewhat different in their discipline and behavior profiles, with students in other private schools reporting more absences and class cutting but also more homework, fewer fights among students, and greater teacher interest in students. However, in all these respects, both sectors showed greater discipline and order than the public schools.

4. Private schools are more successful in creating an interest in learning than are public schools (chapter 5).

There is little evidence to confirm or disconfirm this premise in the report. The sectors differ only slightly in student responses to the two direct questions concerning interest in school, and there is not much to be inferred from indirect evidence presented in the report.

5. Private schools encourage interest in higher education and lead more of their students to attend college than do public schools with comparable students (chapter 6).

The evidence on this premise is toward a positive answer, but it is not extremely strong evidence. There is some evidence that students have higher college aspirations and expectations in private schools than do students from comparable backgrounds in public schools (Table 6.2.).

The report contains no evidence on this premise.

6. Private schools are smaller and thus bring about greater degrees of participation in sports and other activities than do public schools (chapter 5).

The evidence shows that this premise is true for other private schools, but not for Catholic schools (though Catholic school students report highest school spirit, and other private school students lowest); The fact that Catholic schools are smaller in size than public schools does not result in increased participation in extracurricular activities. In addition, participation grows between the sophomore and senior years in other private schools, while it declines slightly in Catholic and public schools.

7. Private schools have smaller class size, and thus allow teachers and students to have greater contact (chapter 4).

The other private schools have sharply lower student-teacher ratios than the public schools, while the Catholic schools have slightly higher ratios. There are fewer than half the students per teacher in other private schools than in public or Catholic schools (Table 4.2.1). No direct evidence on contact between students and teachers is presented.

8. Private schools are more efficient than public schools, accomplishing their task at a lower cost.

The report contains no evidence on this premise.

Premises underlying policies that would decrease the role of private schools:

1. Private schools are socially divisive along income lines, creaming the students from higher income backgrounds, and segregating them into elite schools (chapter 3).

The evidence on this premise works in two directions. First, among the three major sectors, the other private schools contain students from somewhat higher income backgrounds and the Catholic schools contain students from slightly higher income backgrounds than the public schools. The differences are primarily at the highest and lowest income levels, with all three sectors having a majority of students in a broad middle income category ranging from $12,000 to $38,000 a year, and similar proportions at different levels within this range. Second, the internal segregation by income within each sector goes in the opposite direction, with the public sector showing slightly higher income segregation than either the Catholic or other private sectors. However, income segregation is not high within any sector. The end result of these two forces acting in opposite directions is that U.S. schools as a whole show slightly greater segregation by income than would be the case if private school students of differing income levels were absorbed into the public schools in the same way that public school students of differing income levels are currently distributed among schools.

2. Private schools are divisive along religious lines, segregating different religious groups into different schools (chapter 3).

The evidence is strong that this is true. Besides the 30 percent of private schools that are Catholic, enrolling 66 percent of all private school students, 25 percent of private schools, enrolling 12 percent of private school students, are affiliated with other religious denominations. Examining religious segregation solely in the Catholic/non-Catholic dimension, the report shows that the great majority of Catholics are in public schools, but that over 90 percent of the students in Catholic schools are Catholic. Within each sector, the Catholic/non-Catholic segregation is least in the Catholic schools themselves, greatest in the other private schools. The overall impact of the between-sector segregation and the differing segregation within sectors is, as might be expected, that schools in the United States are more segregated along Catholic/non-Catholic lines than they would be if private school students were absorbed into the public schools.

3. Private schools are divisive along racial lines, in two ways: they contain few blacks or other minorities, and thus segregate whites in private schools from blacks in public schools; and the private sector itself is more racially segregated than the public sector (chapter 3).

The evidence shows that the first of these premises is true with respect to blacks but not with respect to Hispanics and that the second is not true with respect to blacks or Hispanics. The end result with respect to Hispanics is that the segregation of U.S. schools is little different from what it would be if there were no private schools.

Catholic schools enroll about half as high a proportion of blacks as the public schools, and other private schools only about a quarter as high a proportion. Internally, however, the other private sector is least racially segregated and the public sector by far the most segregated. The end result of these two opposing forces, between-sector and within-sector, is that the segregation of black and white students in U.S. schools is no greater and no less than it would be if there were no private schools, and their students were absorbed into the public sector, distributed among schools as public sector black and white students are now distributed.

4. Private schools do not provide the educational range that public schools do, particularly in vocational and other nontraditional courses or programs (chapter 4).

The evidence on this premise is that it is correct. Schools in both the Catholic and other private sectors provide primarily academic programs and have few vocational or technical courses. Even in academic areas, however, some of the smaller schools in the other private sector have a limited range of subjects, as evidenced by the fact that 44 percent of students in the other private sector are in schools with no third-year foreign language courses. The lesser educational range of the private sector is also shown by the more comprehensive character of the high-performance public schools compared to the high-performance private schools.

5. Private schools have a narrower range of extracurricular activites, and thus deprive their students of participation in school activities outside the classroom (chapter 5).

This premise is almost the direct opposite of premise 7 on the other side, so the answer is the same as was given there. Students in Catholic and public schools show about the same amount of participation in extracurricular activities, while students in other private schools show more, and participation is higher for seniors than for sophomores Thus this premise is not correct.

6. Private schools are unhealthily competitive, and thus public schools provide a healthier affective development (chapter 5).

The report provides no direct evidence on this premise, but the indirect evidence suggests that something like the reverse is true for the comparison between the other private and public schools. Self-esteem and fate control are both higher in other private schools than in public schools, and the sophomore-senior gain is greater.

7. Facilitating the use of private schools aids whites more than blacks and those better off financially at the expense of those worse off; as a result, it increases racial and economic segregation (chapter 3).

An examination of the predicted effect of a $1,000 increase in income for all income groups shows that this would increase the proportion of blacks and Hispanics in the private sector, as well as the proportion of students from lower income families. Because a tuition tax credit or a school voucher would even more greatly facilitate private school enrollment for students from lower income families relative to students from higher income families, we can expect that either of those policies would even more greatly increase the proportion of blacks or students from low-income backgrounds in the private sector (primarily in the Catholic sector). If either of these policies failed to increase the proportion of blacks or students from low-income families in private schools relative to that in the public schools, then, overall, either of these policies would provide greater financial benefit to whites than to blacks, or to higher income than to lower income families, because of the tuition reductions for parents of those students currently enrolled in the private sector. If one considers only new entrants into the private sector, the evidence from the hypothetical experiment, together with the fact that a tuition tax credit or voucher plan would likely be more progressive in its effect than a $1,000 increase in income, indicates that blacks, Hispanics, and low-income families would differentially benefit. To consider the educational rather than the financial benefits means to consider only the new entrants into the private sector, for it is only their education that would be changed; thus blacks and Hispanics would differentially benefit educationally.

The evidence indicates that facilitating use of private schools through policies of the sort described above would not increase segregation along racial or economic lines but would decrease it (though the evidence indicates that religious segregation would increase). Such policies would bring more blacks, Hispanics, and students from lower income backgrounds into the private schools, thus reducing the between-sector segregation, and these students would be moving from a sector of high racial segregation to a sector of low racial segregation, as well as from a sector slightly higher in economic segregation to one slightly lower.

Additional results relevant to the policy question of facilitating or constraining use of public schools:

1. At middle and higher income levels, the increase in probability of enrollment of blacks with increase in income is higher than that of whites. At virtually all income levels, both the probability of enrollment of Hispanics and the increase in that probability with income are higher than for non-Hispanic whites. Comparing Catholics with Catholics and non-Catholics with non-Catholics shows that blacks have the highest absolute rate of enrollment in Catholic schools, at low as well as high income levels and among both Catholics and non-Catholics, while Hispanics have the lowest rate. In other private schools, black enrollment is low at all income levels except the very highest.

2. Catholic schools more nearly approximate the "common school" ideal of American education than do public schools, in that the achievement levels of students from different parental educational backgrounds, of black and white students, and of Hispanic and non-Hispanic white students are more nearly alike in Catholic schools than in public schools. In addition, the educational aspirations of students from different parental educational backgrounds are more alike in Catholic than in public schools. Comparing public and other private schools shows that students in other private schools with parents of differing education have greater differences in scholastic achievement, while public school students with differing parental education have greater differences in educational aspirations.

3. Important factors in bringing about higher scholastic achievement in private schools than in public schools are the greater academic demands and more ordered environment in the private schools (section 6.3).

The evidence shows not only that the sectors differ greatly on these dimensions, but also that within the public schools students who are better disciplined and are in schools with more ordered environments achieve more highly.

It may or may not be useful to attempt to sum up the overall implications for the premises underlying policy arguments to facilitate or constrain the use of private schools. Some of the premises on each side are confirmed, some on each side are disconfirmed. It is hard, however, to avoid the overall conclusion that the factual premises underlying policies that would facilitate use of private schools are much better supported on the whole than those underlying policies that would constrain their use. Or, to put it another way, the constraints imposed on schools in the public sector (and there is no evidence that those constraints are financial, compared with the private sector) seem to impair their functioning as educational institutions, without providing the more egalitarian outcomes that are one of the goals of public schooling.

APPENDIX A

STATISTICAL REFERENCES

A.1 Calculation of Standard Errors of Estimates

Neither standard errors nor confidence intervals are reported in the tabulations and analyses of this report. Instead, this section presents information that allows calculation of approximate standard errors for most percentages based on student data.

The general equation for calculating the approximate standard error of a percentage is:

$$s.e.(p) = A \sqrt{p(100-p)/n}$$

where p is the percentage for which the standard error is to be calculated; s.e.(p) is the approximate standard error of p; A is a correction factor, which increases with the departure of the sample form a simple random sample through clustering or other aspects of the sample design; and n is the unweighted number of students in the particular class over which the percentage is calculated. (For example, table 3.1.1 estimates that 5.8 percent of sophomores in Catholic schools are black. The unweighted number of sophomores in Catholic schools, which is 2,831--see table A.1.1 below--is the correct value of n for calculating the standard error of this percentage.[1])

The values of A and n for classes on which most of the percentages in this report are based are given in table A.1.1. When percentages are based on different classifications or on subclassifications within each of these classifications, it is appropriate to use the subclass size together with the largest correction factor of those shown in the table that could apply to the subclass.

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[1] This does not take into account sample size reduction by nonresponse. Throughout the report, nonresponses are excluded from the base on which the percentage is calculated. An approximate reduction of n for nonresponse can be determined from the marginals provided in "High School and Beyond Information for Users, Base Year (1980) Data," available from NCES.

The equation for calculating standard errors, together with the data shown in table A.1.1, were used to calculate approximate standard errors for percentages of 50 percent, 10 percent, and 90 percent (the latter two of which have the same standard error). These are given in table A.1.2.

It should be emphasized that these standard errors are approximations intended merely to provide guidance as to the confidence interval around a percentage estimate, or the chance that a difference between two percentages could be due to sampling error.

For estimation of approximate standard errors for data from the school questionnaires, a conservative estimate can be obtained by assuming A to be the same as for student data, and taking n from the number of schools shown for the relevant class in table A.1.3; a nonconservative estimate can be obtained by assuming A=1 for all classes of schools.

A.2 Calculation of Measures of the Distribution of Students within Sectors

The measures employed in chapter 3 for describing variations in student mix among schools within a sector are described below. The measure of interracial contact within a sector is constructed as follows. If we number the schools in the sector 1, ...k, ...n, and consider the first school, there is a given proportion of whites in that school. Call this p_{1w}. There is also a certain number of blacks in the school. Call this n_{1b}. Then, for this number of blacks, the proportion of whites in their school is p_{1w}. If we average this proportion over all schools, weighting by the number of blacks, we obtain the desired measure, which we will call s_{bw}, the proportion of white children in the school of the average black child.

$$s_{bw} = \frac{\sum_k n_{1b} p_{kw}}{\sum_k n_{kb}} \qquad (1)$$

or for groups i and j

$$s_{ij} = \frac{\sum_k n_{ki} p_{kj}}{\sum_k n_{ki}} \qquad (2)$$

This measure is affected not only by the degree of segregation between two groups among schools in the sector, but also by the overall proportion of students in each group. If there are few black children in a sector, for example, then whether or not there is the same proportion of blacks in each school, the average white student will have a small proportion of black children in his or her other school. Because of this, it is valuable to have a measure of just how far from an even distribution across the schools the actual distribution is, that is, a measure that is standardized for the number of whites and blacks in the school type. Such a measure can be constructed, with a value of 0 if there is no segregation between the two groups in question and a value of 1.0 if segregation is complete.

The standardized measure is constructed as follows. Let the proportion of children from group j in the sector be p_j. If the same proportion of children from group j were in each school, then s_{ij} would be equal to p_j. If the children of group j were all in schools by themselves, totally isolated from children of group i, s_{ij} would be 0. Thus a measure of how far s_{ij} is from p_j is $(p_j - s_{ij})/p_j$. This we will call r_{ij}, which may be thought of as a measure of segregation. The formula is:

$$r_{ij} = \frac{p_j - s_{ij}}{p_j} \qquad (3)$$

It is important that, although the standardized measure is a measure of the segregation of children in one group from those in another, it is the unstandardized measure that measures directly the presence of children from one group in schools attended by children of another group. Thus the proportion of black schoolmates for the average white child may be low, without the measure of segregation being especially high.

In order to compute these measures from the High School and Beyond data, sophomores and seniors are combined to give a more precise estimate. Students are assigned their design weights (which may differ for sophomores and seniors), and the proportion of each relevant group in the school is estimated from the weighted numbers in each group. In use of equation (2), n_{ki}, the number of students from group i in school k, is the number weighted by the design weight. If we had information on the whole sophomore and senior classes, it would be valuable to construct measures of contact and segregation at each of the two grade levels.

A.3 Calculation of Measures of the Distribution of Students Relative to the Racial or Ethnic Composition of the Local Area

This section describes the measures employed to compare the racial compositions of schools with those of local areas. Interest in such comparisons derives from concern over the accessibility of private education for students of different minority groups. To follow the line of presentation developed with the measures s_{ij} and r_{ij}, we will conceptualize the problems here in terms of an "average student."

The first measure can be seen as addressing a question about the geographic accessibility of "places" in private education for students of different groups. If the average student within a given sector attends a school that is located in an area that has a lower proportion of, say, blacks, than the average student within another sector, then the conclusion would be that the education provided by schools in the former sector tends to be less geographically accessible to blacks than the education provided by schools in the latter sector. Thus, if the schools in a sector are numbered 1, ...k, ...n, and the first school is considered, this school is located in an area that has some proportion of its population that is black. Call this proportion p_{1b}. There are a certain number of students in this school, n_1, and, for this number of students, the proportion of blacks in the local area of their school is p_{1b}. If this student-weighted proportion is averaged over all schools, we obtain the measure, which will be called U_b, the proportion of blacks in the local area of the school attended by the average student:

$$U_b = \frac{\sum_k n_k p_{kb}}{\sum_k n_k} \qquad (1)$$

or for any population group i:

$$U_i = \frac{\sum_k n_k p_{ki}}{\sum_k n_k} \qquad (2)$$

The proportion obtained for each sector can be compared to those of the other sectors in a straightforward fashion.

A second measure follows directly from the first. If geographic accessibility is taken as given, the question arises, How do the actual enrollments in the different sectors compare to the compositions of the areas where their constituent schools are located? If the schools within a given sector enroll numbers of whites, blacks, and Hispanics that are proportional to the numbers of whites, blacks, and Hispanics living in the areas where the schools are located, then schools of this sector reflect exactly the racial-ethnic composition of the areas where they are located. If, however, the average student in a given sector attends a school that has a lower proportion of, say, blacks or Hispanics, then this means that blacks or Hispanics are not attending schools of this sector despite geographic accessibility. Thus, while the first measure is designed to describe the geographic accessibility of schools in a particular sector to a particular group, the second is designed to describe the degree to which enrollment of that group matches the proportion in the geographic area.

The measure to be constructed is a measure of the difference in proportion of a given group in the school and in the surrounding area, weighted by school enrollment. The measure is constructed as follows:

$$V_i = \frac{\sum\limits_{k} n_k(p_{ki} - q_{ki})}{\sum\limits_{k} n_k} \qquad (3)$$

where n_k is the number of students in school k, p_{ki} is the proportion of the population of the area where school k is located that is of group i, and q_{ki} is the proportion of school k's enrollment that is of group i. Since the sum of the weighted proportions q_{ki} is simply equal to the overall proportion of group i in the sector (see tables 3.1.1 and 3.1.2), equation (3) reduces to

$$V_i = \frac{\sum\limits_{k} n_k p_{ki}}{\sum\limits_{k} n_k} - q_i = U_i - q_i \qquad (4)$$

where q_i is the proportion of the sector's total enrollment that is of group i. The measure V_i for sector X can be expressed by the statement, "The average student in sector X attends a school with a proportion of students in group i that is smaller by V_i than the proportion of youth that are of group i in the area in which the school is located."

Although it was not used in this report, one can estimate the extent to which the student weighted schools in a given sector vary in terms of differences from this overall sector measure, with a deviation score, D_i, analogous to a variance. It is calculated as follows:

$$D_i = \frac{\sum_k (n_k \sqrt{(p_{ki} - q_{ki} - V_i)^2}}{\sum_k n_k} \qquad (5)$$

A.4 Estimating Cognitive Achievement

Tables A.4.1 and A.4.2 provide the regression coefficients as well as R^2's for sophomores and seniors in both the public and private sectors used for predicting achievement in each of the tests analyzed in sections 6.2 and 6.3. Means for each of the background variables used in the equation are found in table A.4.3.

TABLE A.1.1

CORRECTION FACTORS AND SAMPLE SIZES FOR CLASSES ON WHICH MOST PERCENTAGES FROM STUDENT DATA IN REPORT ARE BASED

	U.S. Total	Public	Private			High Performance Schools	
			Total[a]	Catholic	Other Private	Public[b]	Private[c]
Sophomores							
A (correction factor) ...	1.614	1.529	2.160	1.942	2.597	1.614	2.597
n (sample size)	30,263	26,448	3,462	2,831	631	370	353
Seniors							
A (correction factor) ...	1.620	1.509	2.255	2.038	2.689	1.620	2.689
n (sample size)	28,465	24,891	3,248	2,697	551	311	326

[a] The correction factor A for total private is calculated as an average of the Catholic and other private correction factors, weighting the Catholic correction factor by 2 and the other private by 1.

[b] The high performance public correction factor is taken to be the same as that for the public sector as a whole.

[c] The high performance private correction factor is taken to be the same as that for the other private sector.

TABLE A.1.2

APPROXIMATE STANDARD ERRORS FOR PERCENTAGES BASED ON PRINCIPAL CLASSIFICATIONS USED IN REPORT

	U.S. Total	Public	Private			High Performance Schools	
			Total	Catholic	Other Private	Public	Private
Sophomores							
p = 50 percent	0.46	0.47	1.84	1.82	5.17	4.20	6.91
p = 90 percent or 10 percent	0.28	0.28	1.10	1.09	3.10	2.52	4.15
Seniors							
p = 50 percent	0.48	0.48	1.98	1.96	5.73	4.59	7.45
p = 90 percent or 10 percent	0.29	0.29	1.19	1.18	3.44	2.76	4.47

TABLE A.1.3

NUMBERS OF STUDENTS AND SCHOOLS IN SAMPLE, FOR MAJOR SUBCLASSES USED IN REPORT

Case Unit	U.S. Total	Major Sectors			High-Performance Schools	
		Public	Catholic	Private	Public	Private
Total students	58,728 (58,049)[a]	51,339	5,528	1,182	682	679
Sophomores	30,263 (29,910)[a]	26,448	2,831	631	370	353
Seniors	28,465 (28,139)[a]	24,891	2,697	551	311	326
Number of schools	1,015 (1,004)[a]	894	84	27	12	11

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[a] Excluding high-performance private schools.

TABLE A.1.4

WEIGHTED NUMBERS OF STUDENTS AND SCHOOLS IN SAMPLE, FOR MAJOR SUBCLASSES USED IN REPORT

Case Unit	U.S. Total	Major Sectors			High-Performance Schools	
		Public	Catholic	Private	Public	Private
Total students	6,852,441 (6,850,525)[a]	6,195,294	429,217	226,014	88,788	1,916
Sophomores	3,787,782 (3,786,775)[a]	3,436,168	228,417	122,190	44,889	1,007
Seniors	3,064,659 (3,063,750)[a]	2,759,126	200,800	103,824	43,899	909
Number of schools	20,316 (20,303)[a]	15,766	1,571	2,966	128	13

[a] Excluding high-performance private schools.

TABLE A.4.1

REGRESSION COEFFICIENTS AND EXPLAINED VARIANCE (R^2) FOR TABLE 6.2.1: SOPHOMORES

	Public			Private		
	Reading	Vocabulary	Mathematics	Reading	Vocabulary	Mathematics
Intercept	2.092	2.186	5.665	2.629	2.843	7.696
BB101	-.007	.035	.090	.055	.053	.061
BB042	.060	.072	.087	.101	.058	.062
BB039	.077	.098	.186	.053	.111	.152
Number siblings	-.046	-.060	-.069	-.083	-.098	-.118
BB103	.036	.025	.119	.032	-.001	.112
Two-parent household	.061	.015	.236	.203	-.105	-.266
BB037B	-.009	-.028	.008	.009	.028	-.014
BB037C	-.071	-.067	-.165	-.167	-.166	-.359
BB047G	.079	.067	.059	.085	.010	.018
BB104C	.245	.111	.257	-.158	-.100	-.522
BB104D	-.007	.054	.265	.172	.361	.488
BB104G	.252	.294	.379	.391	.561	.899
BB104I	.331	.291	.685	.437	.248	.521
Father's expectation	.180	.134	.486	.108	.113	.396
Mother's expectation	.476	.381	1.167	.479	.373	1.256
Hispanic	-.710	-.543	-1.632	-.312	-.304	-.971
Black	-.927	-.848	-2.254	-.124	-.628	-1.284
Other private	DNA	DNA	DNA	-.170	-.027	-.031
Elite	DNA	DNA	DNA	.966	1.161	2.484
R^2	.190	.215	.254	.121	.169	.150

TABLE A.4.2

REGRESSION COEFFICIENTS AND EXPLAINED VARIANCE (R^2) FOR TABLE 6.2.1: SENIORS

	Public			Private		
	Reading	Vocabulary	Mathematics	Reading	Vocabulary	Mathematics
Intercept	3.020	2.909	6.800	3.623	3.621	8.917
BB101	-.006	.034	.062	-.092	-.052	.030
BB042	.054	.077	.121	.039	.081	.116
BB039	.065	.081	.181	.088	.077	.194
Number siblings	-.041	-.061	-.026	-.038	-.080	-.059
BB103	.021	.014	.059	.018	.036	-.050
Two-parent household	.031	-.078	.150	.073	.150	-.388
BB037B	-.023	.008	-.018	-.017	-.028	-.273
BB037C	-.097	-.117	-.242	-.142	-.136	.222
BB047G	.083	.065	.032	.039	.057	.010
BB104C	.059	.067	.026	-.058	-.110	-.410
BB104D	.045	.155	.303	.036	.140	.398
BB104G	.369	.319	.464	.357	.486	.857
BB104I	.364	.331	.986	.501	.375	.899
Father's expectation	.312	.293	.844	.271	.131	.317
Mother's expectation	.525	.464	1.364	.505	.496	2.019
Hispanic	-1.072	-.792	-1.944	-.346	-.334	-1.080
Black	-1.103	-1.058	-2.435	-.537	-.574	-1.567
Other private	DNA	DNA	DNA	.178	-.034	.129
Elite	DNA	DNA	DNA	1.116	1.084	2.559
R^2	.196	.237	.264	.113	.157	.200

TABLE A.4.3

MEANS FOR REGRESSION COEFFICIENTS IN TABLE 6.2.1

	Sophomores		Seniors	
	Public	Private	Public	Private
BB101	4.058	4.888	4.266	5.059
BB042	4.103	5.207	4.177	5.000
BB039	4.531	5.914	4.653	5.843
Number siblings	2.999	2.811	3.065	2.920
BB103	6.840	7.586	6.949	7.485
Two-parent household	.744	.830	.751	.825
BB037B	2.022	1.888	1.928	1.770
BB037C	2.127	1.874	1.930	1.742
BB047G	2.228	2.301	2.385	2.487
BB104C	.766	.864	.816	.900
BB104D	.639	.801	.704	.846
BB104G	.733	.856	.785	.888
BB104I	.697	.814	.769	.861
Father's expectation	.510	.726	.537	.733
Mother's expectation	.592	.778	.618	.782
Hispanic	.076	.064	.061	.058
Black	.146	.044	.120	.049
Other private	DNA	.348	DNA	.342
Elite	DNA	.022	DNA	.003

APPENDIX B

ITEMS FROM THE STUDENT AND SCHOOL QUESTIONNAIRES USED IN THE ANALYSIS

B.1 Items from the Student Questionnaire

EB004A--K

4. ○ Starting with the beginning of the tenth grade and through the end of this school year how much course work will you have taken in each of the following subjects?

Count only courses that meet at least three times (or three periods) a week. (MARK ONE OVAL FOR EACH LINE)

	None	1/2 year	1 year	1 1/2 years	2 years	2 1/2 years	3 years	More than 3 years
a. Mathematics	○	○	○	○	○	○	○	○
b. English or literature	○	○	○	○	○	○	○	○
c. French	○	○	○	○	○	○	○	○
d. German	○	○	○	○	○	○	○	○
e. Spanish	○	○	○	○	○	○	○	○
f. History or social studies	○	○	○	○	○	○	○	○
g. Science	○	○	○	○	○	○	○	○
h. Business, office, or sales	○	○	○	○	○	○	○	○
i. Trade and industry	○	○	○	○	○	○	○	○
j. Technical courses	○	○	○	○	○	○	○	○
k. Other vocational courses	○	○	○	○	○	○	○	○

YB006A--K

6. ○ During the tenth grade, including all of this school year, how much course work will you have taken in each of the following subjects? Count only courses that meet at least three times (or three periods) a week. (MARK ONE OVAL FOR EACH LINE)

	None	1/2 year	1 year	More than 1 year
a. Mathematics	○	○	○	○
b. English or literature	○	○	○	○
c. French	○	○	○	○
d. German	○	○	○	○
e. Spanish	○	○	○	○
f. History or social studies	○	○	○	○
g. Science	○	○	○	○
h. Business, office, or sales	○	○	○	○
i. Trade and industry	○	○	○	○
j. Technical courses	○	○	○	○
k. Other vocational courses	○	○	○	○

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* First two letters in variable identification refer to grade of respondents; "EB" refers to seniors (elder), "YB" refers to sophomores (younger), and "BB" refers to items asked both of

YB009A--K

9. **During the 11th and 12th grades, how much course work do you plan to take in each of the**
○ **following subjects? (MARK ONE OVAL FOR EACH LINE)**

	None	1/2 year	1 year	1 1/2 years	2 years	More than 2 years	Don't know yet
a. Mathematics	○	○	○	○	○	○	○
b. English or literature	○	○	○	○	○	○	○
c. French	○	○	○	○	○	○	○
d. German	○	○	○	○	○	○	○
e. Spanish	○	○	○	○	○	○	○
f. History or social studies	○	○	○	○	○	○	○
g. Science	○	○	○	○	○	○	○
h. Business, office, or sales	○	○	○	○	○	○	○
i. Trade and industry	○	○	○	○	○	○	○
j. Technical courses	○	○	○	○	○	○	○
k. Other vocational courses	○	○	○	○	○	○	○

EB005A--G

5. **Which of the following courses have you taken, counting the courses you are taking this semester? (MARK ONE OVAL FOR EACH LINE)**

	Yes, have taken	No, have not taken
a. First-year algebra	○	○
b. Second-year algebra	○	○
c. Geometry	○	○
d. Trigonometry	○	○
e. Calculus	○	○
f. Physics	○	○
g. Chemistry	○	○

BB011

13. **Have you ever been in any of the following kinds of courses or programs in high school?**
○ **(MARK ONE OVAL FOR EACH LINE)**

	No	Yes
a. Remedial English (sometimes called basic or essential)	○	○
b. Remedial Mathematics (sometimes called basic or essential)	○	○
c. Advanced or honors program in English	○	○
d. Advanced or honors program in Mathematics	○	○

BB015

15. **Approximately what is the average amount of time you spend on homework a week? (MARK ONE)**

- No homework is ever assigned .... ○
- I have homework, but I don't do it .... ○
- Less than 1 hour a week .... ○
- Between 1 and 3 hours a week .... ○
- More than 3 hours, less than 5 hours a week .... ○
- Between 5 and 10 hours a week .... ○
- More than 10 hours a week .... ○

BB016

17. ○ **Between the beginning of school last fall and Christmas vacation, about how many days were you absent from school for any reason, not counting illness? (MARK ONE)**

- None .... ○
- 1 or 2 days .... ○
- 3 or 4 days .... ○
- 5 to 10 days .... ○
- 11 to 15 days .... ○
- 16 to 20 days .... ○
- 21 or more .... ○

BB017

18. ○ **Between the beginning of school last fall and Christmas vacation, about how many days were you late to school? (MARK ONE)**

- None .... ○
- 1 or 2 days .... ○
- 3 or 4 days .... ○
- 5 to 10 days .... ○
- 11 to 15 days .... ○
- 16 to 20 days .... ○
- 21 or more .... ○

YB019A--F

19. **To what extent are the following disciplinary matters problems in your school? (MARK ONE OVAL FOR EACH LINE)**

	Often happens	Sometimes happens	Rarely or never happens
Students don't attend school	○	○	○
Students cut classes, even if they attend school	○	○	○
Students talk back to teachers	○	○	○
Students refuse to obey instructions	○	○	○
Students get in fights with each other	○	○	○
Students attack or threaten to attack teachers	○	○	○

YB020A--E

20. Listed below are certain rules which some schools have. Please mark those which are enforced in your school. (MARK ALL THAT APPLY)

School grounds closed to students at lunch time .... ○
Students responsible to the school for property damage .... ○
Hall passes required .... ○
"No smoking" rules .... ○
Rules about student dress .... ○

BB019

22. Did you do any work for pay last week, not counting work around the house? (MARK ONE)

Yes .... ○
No .... ○

BB032B--G, J, L--O and YB034L

34. Have you participated in any of the following types of activities either in or out of school this year? (MARK ONE OVAL FOR EACH LINE)

	Have not participated	Have participated actively
a. Athletic teams - in or out of school	○	○
b. Cheer leaders, pep club, majorettes	○	○
c. Debating or drama	○	○
d. Band or orchestra	○	○
e. Chorus or dance	○	○
f. Hobby clubs such as photography, model building, hot rod, electronics, crafts	○	○
g. School subject-matter clubs, such as science, history, language, business, art	○	○
h. Vocational education clubs, such as Future Homemakers, Teachers, Farmers of America, DECA, FBLA, or VICA	○	○
i. Youth organizations in the community, such as Scouts, Y, etc.	○	○
j. Church activities, including youth groups	○	○
k. Junior Achievement	○	○
l. Co-op club	○	○

BB032A--O*

32. Have you participated in any of the following types of activities either in or out of school this year? (MAKE ONE OVAL FOR EACH LINE)

	Have not participated	Have participated actively (but not as a leader or officer)	Have participated as a leader or officer
a. Varsity athletic teams	○	○	○
b. Other athletic teams - in or out of school	○	○	○
c. Cheer leaders, pep club, majorettes	○	○	○
d. Debating or drama	○	○	○
e. Band or orchestra	○	○	○
f. Chorus or dance	○	○	○
g. Hobby clubs such as photography, model building, hot rod, electronics, crafts	○	○	○
h. Honorary clubs, such as Beta Club or National Honor Society	○	○	○
i. School newspaper, magazine, yearbook, annual	○	○	○
j. School subject-matter clubs, such as science, history, language, business, art	○	○	○
k. Student council, student government, political club	○	○	○
l. Vocational education clubs, such as Future Homemakers, Teachers, Farmers of America, DECA, FBLA, or VICA	○	○	○
m. Youth organizations in the community, such as Scouts, Y, etc.	○	○	○
n. Church activities, including youth groups	○	○	○
o. Junior Achievement	○	○	○

BB036A--K

36. Which of the following people live in the same household with you? (MARK ALL THAT ○ APPLY)

a. I live alone ○
b. Father ○
c. Other male guardian (step-father or foster father) ○
d. Mother ○
e. Other female guardian (step-mother or foster mother) ○
f. Brother(s) and/or sister(s) (including step- or half-) ○
g. Grandparent(s) ○
h. My husband/wife ○
i. My child or my children ○
j. Other relative(s) (children or adults) ○
k. Non-relative(s) (children or adults) ○

*For the analysis in this report, last two categories were collapsed.

BB037A--C

37. Did your mother (stepmother or female guardian) usually work during the following periods of your life? (MARK ONE OVAL FOR EACH LINE)

	Did not work	Worked part-time	Worked full-time	Don't know	Does not apply
a. When you were in high school	○	○	○	○	○
b. When you were in elementary school	○	○	○	○	○
c. Before you went to elementary school	○	○	○	○	○

BB039

39. What was the highest level of education your father (stepfather or male guardian) completed?
○ **(MARK ONE)**

Do not live with father (stepfather or male guardian) ○

Less than high school graduation ○
High school graduation only ○

Vocational, trade, or business school after high school
- Less than two years ○
- Two years or more ○

College program
- Less than two years of college ○
- Two or more years of college (including two-year degree) ○
- Finished college (four- or five-year degree) ○
- Master's degree or equivalent ○
- Ph.D., M.D., or other advanced professional degree ○

Don't know ○

BB042

42. What was the highest level of education your mother (stepmother or female guardian)
○ **completed? (MARK ONE)**

[SAME AS ABOVE]

BB046A--C

46. Are the following statements about your parents true or false? (MARK ONE OVAL FOR each line)

	True	False	Does not apply
a. My mother (stepmother or female guardian) keeps close track of how well I am doing in school	○	○	○
b. My father (stepfather or male guardian) keeps close track of how well I am doing in school	○	○	○
c. My parents (or guardians) almost always know where I am and what I'm doing	○	○	○

BB048

48. During week days about how many hours per day do you watch TV? (MARK ONE)

Don't watch TV during week ○
Less than 1 hour ○
1 hour or more, less than 2 ○
2 hours or more, less than 3 ○
3 hours or more, less than 4 ○
4 hours or more, less than 5 ○
5 or more ○

BB050A--E

50. What do the following people think you ought to do after high school? (MARK ONE OVAL FOR EACH LINE)

	Go to college	Get a full-time job	Enter a trade school or an apprenticeship	Enter military service	They don't care	I don't know	Does not apply
a. Your father	○	○	○	○	○	○	○
b. Your mother	○	○	○	○	○	○	○
c. A guidance counselor	○	○	○	○	○	○	○
d. Teachers	○	○	○	○	○	○	○
e. Friends or relatives about your own age	○	○	○	○	○	○	○

BB053E--H

53. Please rate your school on each of the following aspects. (MARK ONE OVAL FOR EACH LINE)

	Poor	Fair	Good	Excellent	Don't know
e. Teacher interest in students	○	○	○	○	○
f. Effective discipline	○	○	○	○	○
g. Fairness of discipline	○	○	○	○	○
h. School spirit	○	○	○	○	○

BB058A--L

58. How do you feel about each of the following statements? (MARK ONE OVAL FOR EACH LINE)

	Agree strongly	Agree	Disagree	Disagree strongly	No opinion
a. I take a positive attitude toward myself	○	○	○	○	○
b. Good luck is more important than hard work for success	○	○	○	○	○
c. I feel I am a person of worth, on an equal plane with others	○	○	○	○	○
d. I am able to do things as well as most other people	○	○	○	○	○
e. Every time I try to get ahead, something or somebody stops me	○	○	○	○	○
f. Planning only makes a person unhappy, since plans hardly ever work out anyway	○	○	○	○	○
g. People who accept their condition in life are happier than those who try to change things	○	○	○	○	○
h. On the whole, I am satisfied with myself	○	○	○	○	○
i. What happens to me is my own doing	○	○	○	○	○
j. At times I think I am no good at all	○	○	○	○	○
k. When I make plans, I am almost certain I can make them work	○	○	○	○	○
l. I feel I do not have much to be proud of	○	○	○	○	○

BB059A--F

59. Are the following statements about your experiences in school true or false? (MARK ONE OVAL FOR EACH LINE)

	True	False
a. I am satisfied with the way my education is going	○	○
b. I have had disciplinary problems in school during the last year	○	○
c. I am interested in school	○	○
d. I have been suspended or put on probation in school	○	○
e. Every once in a while I cut a class	○	○
f. I don't feel safe at this school	○	○

BB061E

67. Are the following statements about yourself true or false? (MARK ONE OVAL FOR EACH LINE)

	True	False
e. I like to work hard in school	○	○

BB065

69. As things stand now, how far in school do you think you will get? (MARK ONE)

○

Less than high school graduation .... ○
High school graduation only .... ○

Vocational, trade, or business school after high school ....
- Less than two years .... ○
- Two years or more .... ○

College program ....
- Less than two years of college .... ○
- Two or more years of college (including two-year degree) .... ○
- Finish college (four- or five-year degree) .... ○
- Master's degree or equivalent .... ○
- Ph.D., M.D., or other advanced professional degree .... ○

YB072A & B, BB068A & B

72. Did you expect to go to college when you were in the following grades? (MARK ONE OVAL FOR EACH LINE)

When you were . . .	Yes	No	Was not sure	Hadn't thought about it
a. In the 6th grade?	○	○	○	○
b. In the 7th grade?	○	○	○	○
c. In the 8th grade?	○	○	○	○
d. In the 9th grade?	○	○	○	○

BB068A & B, EB068C & D

68. Did you expect to go to college when you were in the following grades? (MARK ONE OVAL FOR EACH LINE)

When you were . . .	Yes	No	Was not sure	Hadn't thought about it
a. In the 8th grade?	○	○	○	○
b. In the 9th grade?	○	○	○	○
c. In the 10th grade?	○	○	○	○
d. In the 11th grade?	○	○	○	○

EB073

73. If you plan to work full time after high school, do you have a definite job lined up for you after you leave high school? (MARK ONE)

Yes, I'll continue in a job I now have .... ○
Yes, I have a new job lined up .... ○
No, but I've inquired at employment agencies or potential employers, looked in the newspapers, etc. .... ○
No, I haven't done anything yet to get a job .... ○
Do not plan to work full time after high school .... ○

Background information . . .

BB083

83. **Sex:**
(MARK ONE)

Male ....○
Female ....○

BB087A--G

87. **Do you have any of the following conditions? (MARK ALL THAT APPLY)**
○

a. Specific learning disability ....○
b. Visual handicap ....○
c. Hard of hearing ....○
d. Deafness ....○
e. Speech disability ....○
f. Orthopedic handicap ....○
g. Other health impairment ....○

BB088

88. **Do you feel that you have a physical condition that limits the kind or amount of work you can do on a job, or affects your chances for more education? (MARK ONE)**

No ....○
Yes ....○

NOTE: The following four questions pertain to fundamental freedoms of expression. These and other questions will provide helpful information for the interpretation of survey results. If you have any reservations about answering questions 91, 92, 93 and 94, please remember that you may leave them unanswered.

BB091

91. **What is your religious background? (MARK ONE)**

Baptist ....○
Methodist ....○
Lutheran ....○
Presbyterian ....○
Episcopalian ....○
Other Protestant denomination ....○
Catholic ....○
Other Christian ....○
Jewish ....○
Other religion ....○
None ....○

BB089

90. ○ **What is your race? (MARK ONE)**

- Black ○
- White ○
- American Indian or Alaskan Native ○
- Asian or Pacific Islander ○
- Other ○

BB090

91. ○ **What is your origin or descent? (If more than one, please mark below the one you consider the most important part of your background.) (MARK ONE)**

HISPANIC OR SPANISH:

- Mexican, Mexican-American, Chicano ○
- Cuban, Cubano ○
- Puerto Rican, Puertorriqueno or Boricua ○
- Other Latin American, Latino, Hispanic, or Spanish descent ○

NON-HISPANIC:

- African:
  - Afro-American ○
  - West Indian or Carribean ○
- Alaskan Native ○
- American Indian ○
- Asian or Pacific Islander:
  - Chinese ○
  - Filipino ○
  - Indian, Pakistani or other South Asian ○
  - Japanese ○
  - Korean ○
  - Vietnamese ○
  - Other Pacific Islander ○
  - Other Asian ○
- European:
  - English or Welsh ○
  - French ○
  - German ○
  - Greek ○
  - Irish ○
  - Italian ○
  - Polish ○
  - Portuguese ○
  - Russian ○
  - Scottish ○
  - Other European ○
- Canadian (French) ○
- Canadian (Other) ○
- United States only ○

Other (WRITE IN) ________________________ ○

BB095

96. Did anyone at home read to you when you were young before you started school? (MARK ONE)

Never .... ○
Less than once a month .... ○
One to four times a month .... ○
Several times a week .... ○
Every day .... ○
Don't remember .... ○

BB096A--E

97. How many brothers and sisters do you have in each of the age groups below? Please include step-brothers and step-sisters if they live, or have lived, in your home. (MARK ONE OVAL FOR EACH LINE)

How many brothers and sisters do you have who are . . .	None	One	Two	Three	Four	Five or more
a. Three or more years older than you	○	○	○	○	○	○
b. 1-2 years older	○	○	○	○	○	○
c. Same age as you	○	○	○	○	○	○
d. 1-2 years younger	○	○	○	○	○	○
e. Three or more years younger	○	○	○	○	○	○

BB100

99. American families are divided below into three equal groups according to how much money the family makes in a year. Mark the oval for the group which comes closest to the amount of money your family makes in a year. (MARK ONE)

1/3 of American families make: $11,999 or less .... ○
1/3 of American families make: $12,000 to $19,999 .... ○
1/3 of American families make: $20,000 or more .... ○

BB101

100. This time families are divided into seven groups according to how much money they make in a
○ year. Mark the oval for the group which comes closest to the amount of money your family makes in a year. (MARK ONE)

$6,999 or less .... ○
$7,000 to $11,999 .... ○
$12,000 to $15,999 .... ○
$16,000 to $19,999 .... ○
$20,000 to $24,999 .... ○
$25,000 to $37,999 .... ○
$38,000 or more .... ○

BB103

102. How many rooms are there in your home? Count only the rooms your family lives in. Count the kitchen (if separate) but not bathrooms. (MARK ONE)

1	2	3	4	5	6	7	8	9	10 or more
○	○	○	○	○	○	○	○	○	○

BB104A--I

103. Which of the following do you have in your home? (MARK ONE OVAL FOR EACH LINE)

	Have	Do not have
a. A specific place for study	○	○
b. A daily newspaper	○	○
c. Encyclopedia or other reference books	○	○
d. Typewriter	○	○
e. Electric dishwasher	○	○
f. Two or more cars or trucks that run	○	○
g. More than 50 books	○	○
h. A room of your own	○	○
i. Pocket calculator	○	○

BB115

112. Do you plan to go to college at some time in the future? (MARK ONE)

Yes, right after high school ○
Yes, after staying out one year ○
Yes, after a longer period out of school ○
Don't know ○
No ○

B.2 Items from the School Questionnaire

SB002

2. As of October 1, 1980 (or the nearest date for which data are available), what was the total membership of your high school, and what were the memberships in grades 10 and 12? (IF NONE, WRITE "0")

Total high school membership	Grade 10	Grade 12
(A)	(B)	(C)

SB018

18. Please indicate whether each of the following courses are taught in your school as separate courses. (CIRCLE ONE NUMBER ON EACH LINE)

	Yes	No
a. Second-year algebra	1	2
b. Art	3	4
c. Auto mechanics	1	2
d. Calculus	3	4
e. Chemistry	1	2
f. Drama	3	4
g. Driver training	1	2
h. Economics	3	4
i. Ethnic Studies or Black Studies	1	2
j. Family Life or Sex Education	3	4
k. Geometry	1	2
l. Third-year Spanish	3	4
m. Third-year German	1	2
n. Third-year French	3	4
o. Home Economics	1	2
p. Physics	3	4
q. Psychology	1	2
r. Russian	3	4
s. Trigonometry	1	2
t. Wood or machine shop	3	4

SB027

27. Which of these facilities are available at your school? (CIRCLE AS MANY NUMBERS AS APPLY)

a. Indoor lounge for students	1
b. Career information center	2
c. Occupational training center	3
d. Media production facilities	4
e. Remedial reading and/or remedial mathematics laboratory	5
f. Subject area resources center(s) other than central library	1
g. Departmental offices	2
h. Teaching resources center for teachers' use	3
i. Child care or nursery school facility	4
j. Student cafeteria	5

SB029

29. A. Please indicate whether or not your school currently offers each of the following programs to students. (CIRCLE ONE NUMBER ON EACH LINE)

	Offered	Not offered
a. Credit by contract	1	2
b. Travel for credit	3	4
c. Off-campus work experience or occupational training for credit	1	2
d. College Board Advanced Placement Courses	3	4
e. Student exchange program	1	2
f. Alternative school program	3	4
g. Special program for pregnant girls or mothers	1	2
h. Continuation school	3	4
i. Program for the gifted or talented	1	2
j. Bilingual program	3	4

SB032

32. Please indicate whether or not this high school participates or has students who participate in each of the following federally assisted or financed programs. (CIRCLE ONE NUMBER ON EACH LINE)

	School/Students participate(s)	School/Students do(es) not participate
a. Upward Bound	1	2
b. Talent Search	1	2
c. Elementary and Secondary Education Act:		
1. Title I (Education of children of economically disadvantaged)	1	2
2. Title IV-B (Library and learning resources)	1	2
3. Title IV-C (Educational innovation and support)	1	2
4. Title IV-D (Supplementary educational centers and services)	1	2
5. Title VII (Bilingual education)	1	2
6. Title IX (Ethnic heritage studies)	1	2
d. Indian Education Act	1	2
e. Emergency School Aid Act (desegregation assistance)	1	2
f. School Assistance in Federally Affected Areas	1	2
g. Comprehensive Employment and Training Act (CETA)	1	2
h. Vocational Education Act of 1963:		
1. Consumer and Homemaking Education	1	2
2. Vocational Education Basic Programs	1	2
3. Vocational Education for persons with special needs	1	2
4. Cooperative Vocational Education Program	1	2
5. High School Vocational Education Work-Study Program	1	2
i. Junior ROTC	1	2

SB033

33. Please indicate whether or not your school uses each of the following criteria to classify students as handicapped. (CIRCLE ONE NUMBER ON EACH LINE)

	Yes	No
Standard tests for evaluating specific handicaps	1	2
Federal guidelines	1	2
State guidelines	1	2
Judgments and observations of school counselors and teachers	1	2

SB034

34. How many students in your high school are classified as handicapped? (IF NONE, WRITE "0")

Number of handicapped students: ____________

SB035

35. How does your high school usually accommodate the following types of handicapped students? (CIRCLE ONE NUMBER ON EACH LINE)

	Attend regular classes only	Attend some special and some regular classes	Attend special classes only	No students with this type of handicap in school
a. Multiple handicapped	1	2	3	4
b. Trainable mentally retarded	1	2	3	4
c. Educable mentally retarded	1	2	3	4
d. Hard of hearing	1	2	3	4
e. Deaf	1	2	3	4
f. Deaf-blind	1	2	3	4
g. Speech impaired	1	2	3	4
h. Visually impaired	1	2	3	4
i. Emotionally disturbed	1	2	3	4
j. Orthopedically impaired	1	2	3	4
k. Other health impaired	1	2	3	4
l. Specific learning disabilities	1	2	3	4

SB039

39. Please indicate the size of your high school's staff in each of the following categories. (ENTER NUMBER OR ZERO ON EACH LINE)

	Number of full-time (or full-time equivalent) personnel
a. Assistant principals and deans	________
b. Counselors	________
c. Classroom teachers	________
d. Curriculum specialists	________
e. Remedial specialists	________
f. Librarians/media specialists	________
g. Psychologists	________
h. Teaching aides	________
i. Student teachers	________
j. Volunteers	________
k. Contributed services	________
l. Security guards	________

SB054

54. Listed below are certain rules which some schools have. Please indicate whether or not each is enforced in your high school. (CIRCLE ONE NUMBER ON EACH LINE)

	Yes	No
a. School grounds closed to students at lunch	1	2
b. Students responsible to the school for property damage	3	4
c. Hall passes required	1	2
d. "No smoking" rules	3	4
e. Rules about student dress	1	2

SB056

56. To what degree is each of these matters a problem in your high school? (CIRCLE ONE NUMBER ON EACH LINE)

	Serious	Moderate	Minor	Not at all
a. Student absenteeism	1	2	3	4
b. Students' cutting classes	1	2	3	4
c. Parents' lack of interest in students' progress	1	2	3	4
d. Parents' lack of interest in school matters	1	2	3	4
e. Teacher absenteeism	1	2	3	4
f. Teachers' lack of commitment or motivation	1	2	3	4
g. Physical conflicts among students	1	2	3	4
h. Conflicts between students and teachers	1	2	3	4
i. Robbery or theft	1	2	3	4
j. Vandalism of school property	1	2	3	4
k. Student use of drugs or alcohol	1	2	3	4
l. Rape or attempted rape	1	2	3	4
m. Student possession of weapons	1	2	3	4
n. Verbal abuse of teachers	1	2	3	4

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